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Results for the 2021 VIMS Industry Cooperative Surveys of the Mid-Atlantic, Nantucket Lightship, Closed Area I, and Closed Area II Resource Areas

Submitted to:
Sea Scallop Fishing Industry

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The Virginia Institute of Marine Science (VIMS) conducted high resolution sea scallop dredge surveys of the Mid-Atlantic (MAB), the Nantucket Lightship (NLCA), Closed Area I (CAI), and Closed Area II (CAII) during May - July 2021 (Figure 1). These surveys were funded by the Sea Scallop Research Set-Aside Program (RSA). Exploitable biomass for each survey is shown in Table 1 for each SAMS Area (Scallop Area Management Simulator). SAMS Areas represent management relevant spatial subunits of the resource and explicitly account for differences in recruitment, vital rates, and fishing effort in the forward projection of survey information. This information is used to provide information in the development of alternatives for the annual specifications process. Maps of SAMS Areas are provided in Figures 2 - 5. At the time of the surveys, exploitable biomass estimated from the commercial dredge was 2,316 mt or 5.1 million pounds for the ET Open SAMS Area and 1,230 mt or 2.7 million pounds in the ET Flex SAMS Area. For open bottom in the LI SAMS Area, exploitable biomass was estimated at 7,123 mt or 15.7 million pounds. In the NLCA South Deep SAMS Area, the exploitable biomass was 5,350 mt or 11.8 million pounds. The exploitable biomass estimate for the CAII SW SAMS Area was 15,695 mt or 34.6 million pounds. The CAII Extension (Ext) estimate was 6,220 mt or 13.7 million pounds.

The MAB survey was conducted aboard two commercial vessels: *F/V Carolina Capes II* and *F/V Carolina Boy* during May 2021. Each vessel completed one survey leg and occupied a total of 450 stations throughout the MAB survey area. The CAI and CAII survey was conducted onboard the *F/V Norseman* in June 2021 and a total of 125 stations were completed. The *F/V Celtic* conducted the NLCA survey during June 2021 and occupied a total of 135 survey stations. All vessels were able to tow two dredges simultaneously, with a NMFS 8-foot survey dredge on one side of the vessel and a 14-foot Coonamessett Farm Turtle Deflector

Dredge (CFTDD) on the other. While the comparison of catches between the survey dredge and the commercial dredge are informative on a relative basis, for the purposes of this report, we present only the catch data from the commercial dredges as this information is more applicable to the resource conditions that the industry is likely to encounter. Dredge catch data were obtained during standardized 15-minute survey tows at a speed of 3.8 - 4.0 kts with a 3:1 scope to depth ratio (Table 2).

Catch data in tabular form is shown in Table 2. The number of scallops caught was partitioned into three shell height size classes (<35 mm, 35–75 mm, and >75 mm) for each station (Figures 6 – 8). Figures 9 - 11, show the shell height frequency distribution from both dredges (survey and commercial) for each SAMS Areas.

In addition to the catch data that informed our understanding of scallop abundance and biomass, we also monitored meat quality during each survey. This allowed us to determine the prevalence and intensity of a parasitic nematode observed in the scallop meat and monitor for other diseases that may impact meat quality and yield. Infected scallops typically present with rust colored lesions on the exterior of the adductor muscle, often opposite the sweet meat. Nematode infected scallops were observed only during the MAB survey with a typical number of nematodes observed per scallop meat ranging from 1- 9. The spatial distribution of the nematode prevalence (percent of sampled scallops at a given station with at least one lesion) by year for 2015 - 2021 is shown in Figure 12. From 2016 - 2020, nematode infected scallops have been detected in the HCS, although the distribution is patchy and prevalence is low (20 percent or less of scallops are infected). The distribution of infected scallops observed in 2020 and 2021 was spatially broader as compared to 2019. In 2021, the ET Open and ET Flex SAMS Areas were identified as hot spots with high proportions of infected

scallops, as well as the greatest number of lesions observed per scallop. The distribution of infected scallops in these two areas was patchy in terms of the number of lesions observed per scallop. A higher percentage of infected scallops were also observed in the HCS SAMS Area in 2020 and 2021. The number of infected scallops in the southern portion of the resource area has continued to decline since 2018. This decline may be related to a decline in biomass in the southern portion of the resource. Very few infected scallops were observed in the MAB Nearshore, NYB or the open areas off of LI and BI.

In addition to monitoring nematode infected scallops, we also recorded the presence and severity of shell blister disease (Figure 13). This disease can reduce yield and lower meat quality, and has typically been found in larger scallops in deeper water. For the past two years (2020 and 2021), there has been an increase in the number of scallops with shell blister disease observed in the MAB. The highest percentage of scallops with this disease have been documented in the ET Open (30 percent), ET Flex (25 percent), and HCS (28 percent) SAMS Areas. The spatial distribution of infected scallops has also expanded in 2021 and 2020 compared to 2019 (Figure 14). A greater percentage of scallops with shell blister disease have been observed in the ET Open, ET Flex, and HCS SAMS Areas, as well as in the open bottom in LI.

Table 1: Exploitable biomass as estimated from scallops captured in the commercial dredges during the VIMS/Industry cooperative surveys by survey and SAMS Area during May - June 2021.

Survey	SAMS Area	Exploitable Biomass (mt)	95% CI Lower Bound	95% CI Upper Bound
MAB	BI	451.46	321.53	581.39
	DMV	44.80	1.52	88.08
	ET Flex	1,230.35	918.77	1,541.93
	ET Open	2,316.13	1,944.12	2,688.14
	HCS	2,455.26	2,070.69	2,839.83
	LI	7,123.20	6,364.17	7,882.23
	MAB Nearshore	178.03	78.27	277.79
	NYB	482.08	257.27	706.89
	VIR	0.00	0.00	0.00
NL	North	781.60	646.61	916.59
	South Deep	5,350.41	2,491.12	8,209.70
	West	164.07	101.47	226.67
	VIMS_45	0.67	0.00	1.51
CA I II	CAI Sliver	836.67	684.36	988.98
	CAII Access SE	2,462.54	1,889.53	3,035.55
	CAII Access SW	15,695.75	5,976.58	25,414.92
	CAII Ext	6,220.37	4,031.78	8,408.96
	SF	5,803.52	2,818.07	8,788.97

Table 2: Catch data for the commercial dredges from the VIMS/Industry cooperative surveys completed during May - June 2021.

Survey	StationID	Latitude (degrees)	Latitude (minutes)	Longitude (degrees)	Longitude (minutes)	Scallop (number)	Scallop (lbs)	Scallops (baskets)	Scallop density (m ⁻²)	Nematode Prevalence (%)
MAB	202101001	36	30.47	74	45.86	0	0	0	0	0
MAB	202101002	36	34.52	74	45.44	0	0	0	0	0
MAB	202101003	36	37.35	74	48.02	0	0	0	0	0
MAB	202101004	36	45.05	74	45.99	0	0	0	0	0
MAB	202101005	36	52.09	74	48.45	0	0	0	0	0
MAB	202101006	36	52.7	74	51.42	0	0	0	0	0
MAB	202101007	36	55.69	74	48.26	0	0	0	0	0
MAB	202101008	36	56.54	74	44.05	0	0	0	0	0
MAB	202101010	36	59.98	74	40.71	0	0	0	0	0
MAB	202101011	37	0.19	74	49.17	0	0	0	0	0
MAB	202101012	37	4.54	74	52.52	0	0	0	0	0
MAB	202101013	37	4.53	74	48.87	0	0	0	0	0
MAB	202101014	37	5.25	74	46.58	0	0	0	0	0
MAB	202101015	37	9.73	74	50.36	0	0	0	0	0
MAB	202101017	37	9.41	74	46.66	0	0	0	0	0
MAB	202101018	37	9.28	74	42.82	0	0	0	0	0
MAB	202101019	37	12.19	74	36.15	0	0	0	0	0
MAB	202101020	37	16.94	74	38.61	0	0	0	0	0
MAB	202101021	37	20.24	74	44.76	0	0	0	0	0
MAB	202101022	37	22.45	74	40.33	0	0	0	0	0
MAB	202101023	37	24.12	74	45.05	0	0	0	0	0
MAB	202101024	37	25.28	74	41.85	0	0	0	0	0
MAB	202101025	37	29.2	74	37.1	0	0	0	0	0
MAB	202101026	37	29.49	74	42.08	0	0	0	0	0
MAB	202101027	37	34.16	74	47.11	0	0	0	0	0
MAB	202101028	37	35.57	74	42.87	0	0	0	0	0
MAB	202101029	37	35.6	74	26.38	0	0	0	0	0
MAB	202101030	37	36.4	74	22.71	0	0	0	0	0
MAB	202101031	37	37.43	74	20.03	0	0	0	0	0
MAB	202101032	37	40.95	74	19.4	0	0	0	0	0
MAB	202101033	37	40.76	74	26.94	0	0	0	0	0
MAB	202101034	37	40.62	74	30.42	0	0	0	0	0
MAB	202101035	37	39.04	74	33.77	0	0	0	0	0
MAB	202101036	37	40.67	74	38.16	0	0	0	0	0
MAB	202101037	37	41.96	74	42.67	0	0	0	0	0
MAB	202101038	37	39.55	74	46.89	0	0	0	0	0

MAB	202101039	37	43.82	74	48.69	0	0	0	0	0
MAB	202101040	37	44.47	74	42	0	0	0	0	0
MAB	202101041	37	43.03	74	34.85	0	0	0	0	0
MAB	202101042	37	43.76	74	31.37	0	0	0	0	0
MAB	202101043	37	45.06	74	22.05	0	0	0	0	0
MAB	202101044	37	49.18	74	24.37	0	0	0	0	0
MAB	202101045	37	49.83	74	31.63	0	0	0	0	0
MAB	202101046	37	49.9	74	34.49	0	0	0	0	0
MAB	202101047	37	47.12	74	38.59	0	0	0	0	0
MAB	202101048	37	52.71	74	41.99	0	0	0	0	0
MAB	202101049	37	54.35	74	34.89	0	0	0	0	0
MAB	202101050	37	53.43	74	31.05	0	0	0	0	0
MAB	202101051	37	52.47	74	26.55	0	0	0	0	0
MAB	202101052	37	54.03	74	22.76	0	0	0	0	0
MAB	202101053	37	55.99	74	11.58	0	0	0	0	0
MAB	202101054	37	57.1	74	30.04	0	0	0	0	0
MAB	202101055	37	59.55	74	38.34	0	0	0	0	0
MAB	202101056	37	59.11	74	26.05	0	0	0	0	0
MAB	202101057	38	0.42	74	24.64	0	0	0	0	0
MAB	202101058	38	0	74	21.03	0	0	0	0	0
MAB	202101059	38	2.55	74	19.3	0	0	0	0	0
MAB	202101060	38	3.42	74	16.77	0	0	0	0	0
MAB	202101061	38	7.15	74	7.74	5	0	0.01	0	29
MAB	202101062	38	6.76	74	12.37	0	0	0	0	0
MAB	202101064	38	5.31	74	17.19	0	0	0	0	0
MAB	202101065	38	5.63	74	21.7	0	0	0	0	0
MAB	202101066	38	10.74	74	20.9	0	0	0	0	0
MAB	202101067	38	12.92	74	16.52	0	0	0	0	0
MAB	202101068	38	11.47	74	13.71	42	2	0.5	0.01	27
MAB	202101069	38	9.75	74	10.15	76	5	1	0.02	47
MAB	202101070	38	9.64	74	5.75	16	1	0.25	0	7
MAB	202101071	38	14.2	73	57.81	130	8	1.5	0.03	40
MAB	202101072	38	16.39	73	56.71	226	14	2.5	0.05	40
MAB	202101073	38	15.77	74	2.64	6	0	0.01	0	8
MAB	202101074	38	12.75	74	7.24	392	28	4.75	0.09	47
MAB	202101075	38	14.75	74	12.09	26	2	0.25	0.01	40
MAB	202101076	38	18.01	74	13.78	84	7	1.1	0.02	33
MAB	202101077	38	19.42	74	10.56	70	5	0.9	0.01	40
MAB	202101078	38	19.91	74	5.88	61	4	0.9	0.01	33
MAB	202101079	38	18.58	73	59.89	4	0	0.05	0	86
MAB	202101080	38	19.47	73	56.98	8	0	0.1	0	47

MAB	202101081	38	20.34	73	51.82	3	0	0.05	0	100
MAB	202101082	38	22.27	73	43.54	0	0	0	0	0
MAB	202101083	38	23.33	73	47.82	1	0	0.01	0	0
MAB	202101084	38	22.99	73	53.66	51	3	0.8	0.01	80
MAB	202101085	38	21.97	73	58.79	160	11	1.9	0.03	69
MAB	202101086	38	21.93	74	3.86	94	6	1.25	0.02	80
MAB	202101087	38	20.94	74	8.6	142	10	1.75	0.03	33
MAB	202101088	38	23.02	74	9.86	166	12	2	0.04	40
MAB	202101089	38	24.13	74	13.08	107	9	1.5	0.02	47
MAB	202101090	38	26.09	74	8.29	171	12	1.9	0.04	53
MAB	202101091	38	25.39	74	3.36	103	7	1.15	0.03	67
MAB	202101092	38	25	74	0.42	243	18	2.75	0.05	93
MAB	202101093	38	24.45	73	57.39	235	18	3.25	0.05	87
MAB	202101094	38	25	73	51.35	302	21	3.75	0.07	40
MAB	202101095	38	26.84	73	44.54	234	15	2.5	0.05	47
MAB	202101096	38	27.81	73	42.73	72	4	0.75	0.02	53
MAB	202101097	38	30.19	73	38.89	137	9	1.5	0.03	60
MAB	202101098	38	29.21	73	46.42	394	28	5.25	0.09	47
MAB	202101099	38	28.14	73	51.79	257	19	3	0.06	69
MAB	202101100	38	28.47	73	55.53	162	12	1.75	0.04	73
MAB	202101101	38	29.88	73	57.51	73	5	1	0.02	87
MAB	202101102	38	28.99	74	0.44	176	13	2.25	0.04	73
MAB	202101103	38	28.73	74	4.65	201	15	3	0.05	93
MAB	202101104	38	30.22	74	8.28	77	6	1	0.02	67
MAB	202101105	38	32.3	74	3.65	161	11	2.25	0.03	80
MAB	202101106	38	34.05	74	1.27	258	18	3.1	0.05	67
MAB	202101107	38	33.35	73	57.2	168	12	2.1	0.04	67
MAB	202101108	38	30.87	73	54.95	133	10	1.75	0.03	87
MAB	202101109	38	31.12	73	50.59	171	12	2.1	0.04	60
MAB	202101110	38	32.31	73	47.26	77	5	1.1	0.02	33
MAB	202101111	38	32.68	73	43.18	340	27	4	0.07	53
MAB	202101112	38	33.7	73	39.88	192	13	2.5	0.05	67
MAB	202101113	38	33.31	73	33.65	162	8	1.8	0.03	60
MAB	202101114	38	31.74	73	26.17	6	0	0.05	0	71
MAB	202101115	38	38.27	73	16.7	0	0	0	0	0
MAB	202101116	38	38.43	73	28.98	490	25	4.75	0.1	33
MAB	202101117	38	35.57	73	35.05	273	14	2.5	0.05	73
MAB	202101118	38	35.21	73	42.19	156	10	2	0.03	40
MAB	202101119	38	36.67	73	46.23	186	13	2.4	0.04	53
MAB	202101120	38	37.67	73	43.93	75	5	1	0.02	33
MAB	202101121	38	39.5	73	37.98	98	7	1.4	0.02	33

MAB	202101122	38	40.33	73	33.58	136	9	2	0.03	87
MAB	202101123	38	43.09	73	29.07	36	2	0.75	0.01	33
MAB	202101124	38	43.85	73	23.45	5	0	0.01	0	43
MAB	202101125	38	44.22	73	19.29	44	2	0.5	0.01	40
MAB	202101126	38	45.85	73	9.65	3	0	0.01	0	0
MAB	202101127	38	47.54	73	15.72	59	3	0.6	0.01	40
MAB	202101128	38	49.84	73	15.94	3	0	0.01	0	0
MAB	202101129	38	49.5	73	19.33	21	1	0.01	0	67
MAB	202101130	38	48.1	73	26.68	231	15	3.75	0.05	87
MAB	202101131	38	49.44	73	34.34	210	13	2.1	0.04	47
MAB	202101132	38	51.25	73	29.83	195	12	2.1	0.04	33
MAB	202101133	38	50.01	73	24.15	176	11	2	0.03	53
MAB	202101134	38	52.31	73	20.52	227	13	2.75	0.05	47
MAB	202101135	38	54.38	73	17.67	76	4	0.75	0.02	73
MAB	202101136	38	55.95	73	21.31	83	5	1	0.02	27
MAB	202101137	38	57.96	73	18.2	281	18	4	0.06	60
MAB	202101138	38	58.91	73	14.69	3	0	0.01	0	0
MAB	202101139	38	57.13	73	8.94	3	0	0.01	0	67
MAB	202101140	39	1.1	73	11.94	25	1	0.4	0.01	60
MAB	202101141	39	1.55	73	8.68	123	6	1.25	0.03	33
MAB	202101142	39	2.27	72	56.31	4	0	0.05	0	43
MAB	202101143	39	7.11	73	4.28	30	1	0.4	0	47
MAB	202101144	39	8.78	73	0.28	39	2	0.4	0.01	40
MAB	202101145	39	13.15	73	0.2	22	1	0.35	0	27
MAB	202101146	39	13.21	72	55.56	1	0	0.01	0	67
MAB	202101147	39	16.27	72	56.91	28	1	0.2	0.01	0
MAB	202101148	39	18.65	72	45.38	2	0	0.01	0	33
MAB	202101149	39	23.27	72	49.26	3	0	0.01	0	17
MAB	202101150	39	25.8	72	46.4	2	0	0.01	0	0
MAB	202101151	39	25.11	72	42.25	0	0	0	0	0
MAB	202101152	39	28.23	72	36.16	0	0	0	0	0
MAB	202101153	39	30.39	72	43.12	165	10	1.75	0.04	20
MAB	202101154	39	28.01	72	48.52	240	16	2.5	0.05	27
MAB	202101155	39	29.08	72	54.24	202	14	2.5	0.05	33
MAB	202101156	39	29.57	72	58.37	143	10	2	0.03	40
MAB	202101157	39	31.22	73	3.5	84	5	1	0.02	7
MAB	202101158	39	27.88	73	9.14	83	6	1	0.02	0
MAB	202101159	39	24.71	73	6.53	88	5	1	0.02	0
MAB	202101160	39	25.67	73	3.39	232	16	2.75	0.05	7
MAB	202101161	39	24.98	73	0.22	178	12	2.1	0.04	7
MAB	202101162	39	25.85	72	53.83	108	7	1.5	0.02	33

MAB	202101164	39	20.98	72	54.25	791	40	7.9	0.16	20
MAB	202101165	39	22.34	72	56.78	138	8	1.5	0.03	40
MAB	202101166	39	20.27	72	58.05	288	19	2.9	0.06	13
MAB	202101167	39	20.48	73	2.74	87	5	0.9	0.02	27
MAB	202101168	39	18.47	73	6.53	102	7	1.25	0.02	13
MAB	202101169	39	19.73	73	11.48	85	5	1	0.02	7
MAB	202101170	39	20.18	73	15.98	95	7	1.2	0.02	13
MAB	202101171	39	17.46	73	16.8	58	4	0.75	0.01	20
MAB	202101172	39	15.02	73	18.24	116	8	1.25	0.03	0
MAB	202101173	39	13.9	73	15.74	99	6	1.15	0.02	0
MAB	202101174	39	14.85	73	12.48	70	4	0.8	0.01	20
MAB	202101175	39	15.24	73	7.92	96	6	1.1	0.02	27
MAB	202101176	39	12.58	73	9.14	86	5	1.05	0.02	27
MAB	202101177	39	9.48	73	9.12	81	5	1.1	0.02	47
MAB	202101178	39	8.74	73	16.65	102	7	1.1	0.02	27
MAB	202101179	39	8.7	73	19.73	200	14	2.25	0.05	13
MAB	202101180	39	5.76	73	19.66	158	10	2	0.03	0
MAB	202101181	39	6.37	73	14.4	71	5	1	0.01	20
MAB	202101182	39	3.08	73	15.37	354	20	4.5	0.09	33
MAB	202101183	39	0.33	73	24.3	174	11	2	0.04	7
MAB	202101184	38	56.72	73	28.4	88	6	1.1	0.02	7
MAB	202101185	38	55.09	73	35.49	37	3	0.6	0.01	20
MAB	202101186	38	52.94	73	34.88	73	6	1	0.02	20
MAB	202101187	38	52.46	73	37.69	48	4	0.75	0.01	27
MAB	202101188	38	51.45	73	38.73	104	7	1.1	0.02	0
MAB	202101189	38	50.25	73	49.16	46	4	0.75	0.01	12
MAB	202101190	38	46.08	73	41.21	97	6	1.1	0.02	13
MAB	202101191	38	46.1	73	32.33	64	4	1.75	0.01	40
MAB	202101192	38	43.04	73	37.07	87	6	1	0.02	27
MAB	202101193	38	44.73	73	43.58	79	5	1	0.02	0
MAB	202101194	38	46.16	73	49.92	49	4	0.6	0.01	27
MAB	202101195	38	42.79	73	58.27	39	3	0.5	0.01	0
MAB	202101196	38	42.2	73	55.61	168	13	2.05	0.03	0
MAB	202101197	38	41.58	73	50.41	85	6	0.8	0.02	20
MAB	202101198	38	41.33	73	45.76	58	4	0.6	0.01	20
MAB	202101199	38	40.36	73	41.09	96	7	1.25	0.02	27
MAB	202101200	38	39.99	73	45.04	92	6	1.1	0.02	40
MAB	202101201	38	38.78	73	49.67	110	8	1.2	0.02	53
MAB	202101202	38	39.67	73	54.62	83	7	1	0.02	13
MAB	202101203	38	36.84	73	52.46	101	8	1.2	0.02	0
MAB	202101204	38	37.15	73	56.43	168	13	2	0.03	27

MAB	202101205	38	38.69	73	59.46	87	7	1.2	0.02	40
MAB	202101206	38	39.02	74	3.01	86	6	1.1	0.02	60
MAB	202101207	38	38.35	74	7.36	71	6	1	0.01	40
MAB	202101208	38	40.69	74	11.53	3	0	0.05	0	25
MAB	202101209	38	43.76	74	9.8	91	8	1.25	0.02	47
MAB	202101210	38	42.27	74	15.43	5	0	0.05	0	20
MAB	202101211	38	40	74	20.6	1	0	0.01	0	0
MAB	202101212	38	35.6	74	20.52	0	0	0	0	0
MAB	202101213	38	37.27	74	13.64	22	2	0.25	0	53
MAB	202101214	38	36.42	74	12.4	61	6	1	0.01	60
MAB	202101215	38	36.16	74	5.31	75	5	1	0.02	33
MAB	202101216	38	33.31	74	6.18	75	5	1	0.02	56
MAB	202101217	38	33.26	74	10.4	57	5	1	0.01	67
MAB	202101218	38	32.69	74	14.05	8	1	0.01	0	50
MAB	202101219	38	28.44	74	13.84	0	0	0	0	0
MAB	202101220	38	24.01	74	25.12	5	0	0.01	0	20
MAB	202101221	38	22.14	74	16.65	7	1	0.01	0	29
MAB	202101222	38	20.17	74	20.87	0	0	0	0	0
MAB	202101223	38	18.37	74	19.21	0	0	0	0	0
MAB	202101224	38	9.89	74	27.36	0	0	0	0	0
MAB	202101225	38	8.6	74	34.25	0	0	0	0	0
MAB	202101226	38	4.6	74	37.75	0	0	0	0	0
MAB	202101227	38	7.41	74	45.19	0	0	0	0	0
MAB	202102001	38	53.21	74	1.82	0	0	0	0	0
MAB	202102002	38	51.83	73	45.62	30	2	0.2	0.01	0
MAB	202102003	38	54.72	73	45.5	21	2	0.1	0	0
MAB	202102004	38	56.26	73	39.63	51	4	0.6	0.01	0
MAB	202102005	38	58.99	73	33.98	51	3	0.7	0.01	0
MAB	202102006	39	5.24	73	29.15	320	21	4.1	0.06	0
MAB	202102007	39	8.35	73	26.77	117	7	1.5	0.03	7
MAB	202102008	39	11.31	73	27.29	218	15	2.5	0.05	7
MAB	202102009	39	13	73	27.22	26	2	0.2	0.01	0
MAB	202102010	39	17.4	73	30.29	54	4	0.8	0.01	7
MAB	202102011	39	21.07	73	22.09	45	3	0.6	0.01	13
MAB	202102012	39	24.29	73	23.27	87	8	1.25	0.02	0
MAB	202102013	39	26.41	73	18.7	5	0	0.05	0	0
MAB	202102014	39	34.28	73	13.32	142	11	1.6	0.03	0
MAB	202102015	39	34.81	73	12.28	64	5	0.8	0.01	0
MAB	202102016	39	32.97	72	58.82	213	14	2.5	0.04	20
MAB	202102017	39	31.85	72	55.74	243	18	2.7	0.05	29
MAB	202102018	39	32.74	72	51.57	32	2	0.25	0.01	13

MAB	202102020	39	35.83	72	43.5	140	9	1.75	0.03	13
MAB	202102021	39	35.44	72	41.15	3	0	0.05	0	0
MAB	202102022	39	36.46	72	47.52	97	5	1	0.02	0
MAB	202102023	39	34.85	72	54.23	111	8	1.25	0.02	7
MAB	202102024	39	37	72	57.01	164	9	2	0.03	7
MAB	202102025	39	35.9	73	0.91	76	5	1.1	0.02	7
MAB	202102026	39	38.81	73	1.84	75	5	1	0.01	0
MAB	202102027	39	42.96	73	5.26	122	8	1.2	0.03	0
MAB	202102028	39	40.92	73	9.04	98	8	1.1	0.02	0
MAB	202102029	39	37.51	73	13.24	46	4	0.75	0.01	0
MAB	202102030	39	42.43	73	19.38	9	1	0.01	0	0
MAB	202102031	39	40.99	73	22.94	2	0	0.01	0	0
MAB	202102032	39	42.04	73	27.06	1	0	0.01	0	0
MAB	202102033	39	47.88	73	22.13	85	6	1	0.02	0
MAB	202102034	39	51.83	73	20.19	333	17	3.1	0.07	0
MAB	202102035	39	52.24	73	15.1	189	9	1.9	0.04	0
MAB	202102036	39	53.19	73	12.03	409	22	3.9	0.09	0
MAB	202102037	39	52.1	73	6.94	173	10	1.75	0.03	0
MAB	202102038	39	46.18	73	6.78	108	8	1.25	0.02	13
MAB	202102039	39	48.36	73	3.73	175	11	1.7	0.04	7
MAB	202102040	39	50.05	73	0.8	23	2	0.3	0	27
MAB	202102041	39	47.45	72	59.2	3	0	0.05	0	0
MAB	202102042	39	45.76	73	1.84	152	8	1.4	0.03	0
MAB	202102043	39	43.05	73	0.99	46	3	0.4	0.01	0
MAB	202102044	39	44.75	72	58.18	372	19	4.5	0.08	0
MAB	202102045	39	44.13	72	53.88	13	1	0.01	0	0
MAB	202102046	39	42.92	72	50.83	50	3	0.6	0.01	0
MAB	202102047	39	39.8	72	52.81	4	0	0.01	0	0
MAB	202102048	39	38.73	72	45.1	157	10	1.75	0.03	7
MAB	202102049	39	41.14	72	43.18	56	3	0.75	0.01	7
MAB	202102050	39	42.2	72	47.89	14	1	0.01	0	14
MAB	202102051	39	44.87	72	44.57	69	5	1	0.01	13
MAB	202102052	39	46.23	72	38.29	56	5	0.75	0.01	7
MAB	202102053	39	50.74	72	44.79	0	0	0	0	0
MAB	202102054	39	51.17	72	41.99	18	1	0.1	0	0
MAB	202102055	39	51.38	72	39.86	224	14	2.5	0.04	7
MAB	202102056	39	54.55	72	43.59	194	15	2.4	0.04	0
MAB	202102057	39	55.87	72	49.76	59	4	0.8	0.01	7
MAB	202102058	39	54.87	72	54.11	110	8	1.3	0.02	0
MAB	202102059	39	55.55	72	57.81	129	11	1.6	0.03	0
MAB	202102060	39	55.74	73	1.17	70	6	1	0.01	0

MAB	202102061	39	55.32	73	4.41	38	3	0.6	0.01	13
MAB	202102062	39	58.89	72	59.34	101	8	1.3	0.02	0
MAB	202102063	40	4.03	73	5.88	128	10	1.4	0.03	0
MAB	202102064	40	5.68	73	2.18	84	7	1	0.02	0
MAB	202102065	40	5.48	72	56.48	138	11	1.75	0.03	0
MAB	202102066	40	1.78	72	54.56	150	11	1.75	0.03	0
MAB	202102067	40	3.58	72	50.79	139	11	1.75	0.03	6
MAB	202102068	40	1.41	72	45.88	160	11	1.75	0.03	0
MAB	202102069	39	58.48	72	46.04	132	10	1.5	0.03	0
MAB	202102070	39	57.97	72	42.5	118	10	1.5	0.02	7
MAB	202102071	39	58.27	72	36.87	127	8	1.4	0.03	0
MAB	202102072	39	58.07	72	29.04	1	0	0.01	0	7
MAB	202102073	39	59.6	72	27	44	3	0.6	0.01	0
MAB	202102074	40	2.72	72	30.13	96	7	1.1	0.02	0
MAB	202102075	40	2.84	72	35.28	72	5	1	0.02	0
MAB	202102076	40	5.46	72	38.96	79	6	1.1	0.02	0
MAB	202102077	40	7.83	72	44.04	118	9	1.6	0.02	0
MAB	202102078	40	11.53	72	40.09	30	3	0.5	0.01	0
MAB	202102079	40	12.87	72	37.1	35	3	0.6	0.01	0
MAB	202102080	40	13.63	72	34.2	71	5	0.8	0.01	0
MAB	202102081	40	16.07	72	35.89	92	7	1.1	0.02	0
MAB	202102082	40	18.95	72	33.83	155	12	1.8	0.03	7
MAB	202102083	40	13.93	72	24.84	197	16	2.5	0.04	0
MAB	202102084	40	12.26	72	22.46	39	3	0.5	0.01	13
MAB	202102085	40	8.56	72	27.13	71	6	1	0.01	7
MAB	202102086	40	6.57	72	25.27	121	8	1.4	0.02	0
MAB	202102087	40	5.07	72	18.94	4	0	0.05	0	0
MAB	202102088	40	5.3	72	12.91	0	0	0	0	0
MAB	202102089	40	5.87	72	8.6	0	0	0	0	0
MAB	202102090	40	8.16	72	5.69	11	1	0.1	0	7
MAB	202102091	40	10.59	72	10.44	1	0	0.01	0	0
MAB	202102092	40	12.99	72	8.13	8	0	0.1	0	25
MAB	202102093	40	13.17	72	1.63	16	1	0.15	0	7
MAB	202102094	40	16.03	71	57.07	1	0	0.01	0	0
MAB	202102095	40	18.77	71	54.65	6	0	0.1	0	30
MAB	202102096	40	20.01	71	47.91	0	0	0	0	0
MAB	202102097	40	22.61	71	56.44	0	0	0	0	0
MAB	202102098	40	24.1	72	3.45	253	16	3	0.05	0
MAB	202102099	40	16.72	72	6.34	154	10	1.8	0.03	0
MAB	202102100	40	16.12	72	15.26	102	7	1.1	0.02	0
MAB	202102101	40	19.09	72	18.6	206	16	2.8	0.04	0

MAB	202102102	40	25.71	72	20.05	73	7	1.2	0.02	0
MAB	202102103	40	23.72	72	14.1	12	1	0.1	0	0
MAB	202102104	40	24.84	72	8.44	151	10	1.8	0.03	0
MAB	202102105	40	28.83	72	7.43	22	2	0.3	0	0
MAB	202102106	40	28.7	72	1.32	130	9	1.5	0.03	0
MAB	202102107	40	31.39	71	57.27	46	3	0.75	0.01	0
MAB	202102108	40	30.54	71	52.71	1	0	0.01	0	0
MAB	202102109	40	31.58	71	48.73	0	0	0	0	0
MAB	202102110	40	34.68	71	44.78	0	0	0	0	0
MAB	202102111	40	35.25	71	40.29	0	0	0	0	0
MAB	202102112	40	32.1	71	31.19	0	0	0	0	0
MAB	202102113	40	35.67	71	31.39	0	0	0	0	0
MAB	202102114	40	41.19	71	36.39	0	0	0	0	0
MAB	202102115	40	38.61	71	39.2	0	0	0	0	0
MAB	202102116	40	36.84	71	49.35	124	10	1.5	0.03	7
MAB	202102117	40	36.97	71	53.61	407	25	3.75	0.09	0
MAB	202102118	40	35.23	71	59.84	170	14	2.1	0.04	7
MAB	202102119	40	36.86	72	2.44	61	5	0.9	0.01	0
MAB	202102120	40	38.12	72	7.04	89	8	1.2	0.02	0
MAB	202102121	40	39.46	72	11.19	11	1	0.15	0	0
MAB	202102122	40	40.82	72	12.17	0	0	0	0	0
MAB	202102123	40	41.88	72	9.12	29	3	0.3	0.01	0
MAB	202102124	40	40.44	72	4.3	90	7	1.2	0.02	13
MAB	202102125	40	41.95	72	0.96	345	20	3.2	0.07	0
MAB	202102126	40	38.54	71	57.82	195	16	2.75	0.04	0
MAB	202102127	40	40.14	71	54.47	643	40	6	0.14	0
MAB	202102128	40	41.26	71	51.07	140	11	1.75	0.03	0
MAB	202102129	40	43.4	71	56.88	215	14	2.1	0.04	0
MAB	202102130	40	44.46	71	52.67	81	6	1	0.02	0
MAB	202102131	40	44.92	71	47.71	78	5	1	0.02	0
MAB	202102132	40	48.33	71	51.95	74	6	1	0.02	0
MAB	202102133	40	49.86	71	46.88	96	6	1	0.02	0
MAB	202102134	40	49.89	71	41.93	12	1	0.1	0	0
MAB	202102135	40	54.37	71	37.34	275	14	2.2	0.06	0
MAB	202102136	40	55.87	71	31.98	42	3	0.75	0.01	0
MAB	202102137	40	57.13	71	25.34	95	8	1	0.02	0
MAB	202102138	40	58.2	71	28.81	69	6	1	0.01	0
MAB	202102139	40	57.94	71	34.62	180	13	1.75	0.04	0
MAB	202102140	40	58.55	71	40.49	146	8	1.3	0.03	0
MAB	202102141	41	1.86	71	34.31	94	7	1	0.02	0
MAB	202102142	41	0.91	71	31.77	104	8	1.1	0.02	0

MAB	202102143	41	3.32	71	21.39	72	5	0.8	0.01	0
MAB	202102144	41	3.49	71	31.15	2	0	0.02	0	0
MAB	202102145	41	4.59	71	41.36	2	0	0.02	0	0
MAB	202102146	41	1.51	71	44.93	0	0	0	0	0
MAB	202102147	40	54.45	71	46.37	276	17	2.5	0.06	0
MAB	202102148	40	54.03	71	51.6	1	0	0.02	0	0
MAB	202102149	40	54.72	71	56.87	0	0	0	0	0
MAB	202102150	40	52.89	71	59.35	0	0	0	0	0
MAB	202102151	40	52.64	72	5.57	0	0	0	0	0
MAB	202102152	40	50.63	72	9.58	0	0	0	0	0
MAB	202102153	40	48.35	72	7.01	10	1	0.1	0	8
MAB	202102154	40	44.62	72	10.92	2	0	0.05	0	0
MAB	202102155	40	45.18	72	15.24	79	6	1	0.02	0
MAB	202102156	40	46.19	72	21.86	0	0	0	0	0
MAB	202102157	40	44.13	72	30.05	0	0	0	0	0
MAB	202102158	40	42.35	72	29.42	0	0	0	0	0
MAB	202102159	40	43.02	72	20.74	2	0	0.01	0	0
MAB	202102160	40	41.29	72	16.99	86	6	1	0.02	0
MAB	202102161	40	40.23	72	22.31	5	0	0.1	0	0
MAB	202102162	40	38.47	72	25.23	22	2	0.1	0	0
MAB	202102163	40	36.43	72	16.33	26	2	0.1	0.01	0
MAB	202102164	40	34.74	72	12.73	36	4	0.25	0.01	0
MAB	202102165	40	33.15	72	15.08	17	2	0.1	0	13
MAB	202102166	40	33.72	72	18.78	23	2	0.2	0.01	0
MAB	202102167	40	32.71	72	20.36	23	2	0.2	0	0
MAB	202102168	40	29.48	72	21.78	2	0	0.01	0	0
MAB	202102169	40	29.71	72	24.97	65	4	0.6	0.01	0
MAB	202102170	40	31.66	72	27.29	111	7	1.05	0.02	0
MAB	202102171	40	32.01	72	37.88	45	4	0.5	0.01	0
MAB	202102172	40	34.99	72	46.03	1	0	0.01	0	0
MAB	202102173	40	32.56	72	51.71	0	0	0	0	0
MAB	202102174	40	30.99	72	43.93	46	4	0.6	0.01	7
MAB	202102175	40	29.33	72	39.64	54	4	0.7	0.01	7
MAB	202102176	40	25.6	72	37.68	6	0	0.05	0	0
MAB	202102177	40	25.17	72	34.53	10	1	0.1	0	0
MAB	202102178	40	25.25	72	27.18	169	13	2	0.04	0
MAB	202102179	40	21.91	72	34.46	217	16	2	0.04	0
MAB	202102180	40	23.73	72	41.56	165	13	1.75	0.03	0
MAB	202102181	40	25.7	72	44.49	109	9	1.1	0.02	7
MAB	202102182	40	29.01	72	51.74	25	2	0.25	0.01	0
MAB	202102183	40	27.54	72	58.6	11	1	0.1	0	0

MAB	202102184	40	24.75	72	51.97	253	20	2.75	0.05	0
MAB	202102185	40	23.45	72	55.54	145	11	1.75	0.03	0
MAB	202102186	40	20.89	72	53.33	72	5	0.8	0.02	0
MAB	202102187	40	17.59	72	50.64	243	18	2.4	0.05	0
MAB	202102188	40	15.83	72	42.51	39	3	0.5	0.01	0
MAB	202102189	40	13.51	72	47.65	25	2	0.25	0	0
MAB	202102190	40	13.42	72	54.34	130	11	1.5	0.03	0
MAB	202102191	40	12.1	72	57.99	128	10	1.5	0.03	0
MAB	202102192	40	14.19	72	58.93	138	10	1.5	0.03	0
MAB	202102193	40	18.83	72	58.02	162	12	1.8	0.03	0
MAB	202102194	40	21.63	73	9.16	3	0	0.02	0	20
MAB	202102195	40	19.36	73	8.05	21	2	0.2	0	0
MAB	202102196	40	16.07	73	5.62	87	7	1	0.02	0
MAB	202102197	40	12.11	73	6.37	86	7	1	0.02	0
MAB	202102198	40	7.79	73	9.63	95	7	1	0.02	0
MAB	202102199	40	12.13	73	15.48	2	0	0.01	0	0
MAB	202102200	40	14.25	73	21.18	0	0	0	0	0
MAB	202102201	40	8.11	73	26.84	11	1	0.15	0	21
MAB	202102202	40	7.49	73	37.35	1	0	0.01	0	0
MAB	202102203	40	11.5	73	40.12	0	0	0	0	0
MAB	202102204	40	10.46	73	43.95	0	0	0	0	0
MAB	202102205	40	7.44	73	43.57	0	0	0	0	0
MAB	202102206	40	4.54	73	42.29	0	0	0	0	0
MAB	202102207	40	1.8	73	29.11	385	22	3.5	0.07	6
MAB	202102208	40	0.43	73	24.26	1	0	0.01	0	0
MAB	202102209	40	1.55	73	22.1	13	1	0.1	0	0
MAB	202102210	40	0.58	73	21.62	7	1	0.01	0	0
MAB	202102211	39	59.02	73	15.41	32	3	0.4	0.01	0
MAB	202102212	39	57.32	73	10.51	18	1	0.25	0	0
MAB	202102213	39	56.51	73	16.47	0	0	0	0	0
MAB	202102214	39	58.33	73	23.7	3	0	0.01	0	0
MAB	202102215	39	58.55	73	30.91	1	0	0.01	0	0
MAB	202102216	39	59.65	73	39.45	1	0	0.01	0	0
MAB	202102217	39	58.53	73	43.79	0	0	0	0	0
MAB	202102218	39	55.81	73	39.96	0	0	0	0	0
MAB	202102219	39	54.71	73	35.83	0	0	0	0	0
MAB	202102220	39	53.96	73	32.86	0	0	0	0	0
MAB	202102221	39	51.15	73	34.68	0	0	0	0	0
MAB	202102222	39	29.37	73	33.93	6	1	0.05	0	45
MAB	202102223	39	24.18	73	34.31	12	1	0.1	0	20
MAB	202102224	39	19.51	73	34.65	11	1	0.1	0	20

MAB	202102225	39	17.65	73	37.91	2	0	0.01	0	25
MAB	202102226	39	14.72	73	39.53	31	3	0.3	0.01	0
MAB	202102227	39	11.19	73	38.15	2	0	0.01	0	14
MAB	202102228	39	6.72	73	50.55	0	0	0	0	0
CAI II	202103001	40	34.91	67	57.13	14	1	0.1	0	0
CAI II	202103002	40	33.81	67	50.47	1	0	0.01	0	0
CAI II	202103003	40	34.02	67	42.13	0	0	0	0	0
CAI II	202103004	40	36.68	67	44.85	78	5	0.75	0.02	0
CAI II	202103005	40	37.2	67	51.72	103	6	1	0.02	0
CAI II	202103007	40	37.94	67	59.38	121	7	1.3	0.02	0
CAI II	202103008	40	42.18	67	59.92	77	6	1	0.02	0
CAI II	202103009	40	40.53	67	50.01	326	18	3.5	0.07	0
CAI II	202103010	40	40.62	67	41.3	288	18	2.75	0.06	0
CAI II	202103011	40	40.53	67	35.98	380	24	3.5	0.07	0
CAI II	202103012	40	43.61	67	37.28	925	51	7.4	0.19	0
CAI II	202103013	40	44.98	67	30.09	237	15	2.8	0.05	0
CAI II	202103014	40	43.87	67	26.86	196	12	2.1	0.04	0
CAI II	202103015	40	43.85	67	22.25	6	0	0.05	0	0
CAI II	202103016	40	42.03	67	11.56	2	0	0.01	0	0
CAI II	202103017	40	44.29	67	6.6	0	0	0	0	0
CAI II	202103019	40	47.79	67	15.05	4	0	0.1	0	0
CAI II	202103021	40	46.71	67	18.79	32	2	0.4	0.01	0
CAI II	202103023	40	49.34	67	22.88	422	28	4	0.08	0
CAI II	202103024	40	51.22	67	31.18	897	51	8.3	0.17	0
CAI II	202103025	40	53.21	67	30.46	531	32	5	0.11	0
CAI II	202103026	40	53.11	67	25.79	3,460	189	38	0.72	0
CAI II	202103027	40	51.96	67	15.58	590	39	7.3	0.12	0
CAI II	202103028	40	50.41	67	3.06	273	19	3.5	0.06	0
CAI II	202103029	40	46.86	67	0.4	9	1	0.01	0	0
CAI II	202103030	40	48.91	66	54.79	0	0	0	0	0
CAI II	202103031	40	51.69	66	58.56	253	17	2.2	0.05	0
CAI II	202103032	40	52.5	66	49.73	12	1	0.1	0	0
CAI II	202103034	40	54.69	66	57.16	178	14	2	0.04	0
CAI II	202103036	40	55.59	67	1.8	1,091	63	11	0.22	0
CAI II	202103037	40	56.26	67	7.05	1,690	111	20	0.34	0
CAI II	202103038	40	58.4	67	17.37	185	15	1.8	0.04	0
CAI II	202103039	41	2.36	67	18.53	29	3	0.3	0.01	0
CAI II	202103040	41	0.47	67	10.74	115	13	1.5	0.02	0
CAI II	202103041	40	58.99	67	1.21	2,524	155	27	0.51	0
CAI II	202103042	40	58.02	66	57.1	1,194	70	12	0.25	0
CAI II	202103044	40	58.56	66	52.34	251	18	1.8	0.05	0

CAI_II	202103045	40	57.33	66	46.95	71	6	0.75	0.01	0
CAI_II	202103046	40	54.39	66	42.76	11	1	0.1	0	0
CAI_II	202103047	40	58.31	66	37.09	0	0	0	0	0
CAI_II	202103048	41	0.38	66	33.01	0	0	0	0	0
CAI_II	202103049	40	59.59	66	40.92	185	18	2	0.04	0
CAI_II	202103050	41	2.35	66	44.01	1,494	107	12	0.3	0
CAI_II	202103051	41	1.93	66	52.75	7,903	536	66.5	1.52	0
CAI_II	202103052	41	5.56	66	54.38	4,380	381	43	0.83	0
CAI_II	202103054	41	3.17	66	57.64	14,918	1,146	124.9	3.01	0
CAI_II	202103055	41	5.11	67	0.46	260	21	3	0.06	0
CAI_II	202103057	41	4.27	67	5.03	52	6	0.5	0.01	0
CAI_II	202103058	41	5.86	67	9.46	29	3	0.2	0.01	0
CAI_II	202103059	41	5.52	67	18.38	5	1	0.01	0	0
CAI_II	202103060	41	9.76	67	19.14	0	0	0	0	0
CAI_II	202103063	41	9.02	67	14.17	12	1	0.1	0	0
CAI_II	202103065	41	8.13	67	7.44	57	6	0.75	0.01	0
CAI_II	202103066	41	8.73	67	0.62	71	8	1	0.02	0
CAI_II	202103067	41	9.86	66	56.02	38	4	0.5	0.01	0
CAI_II	202103068	41	8.74	66	51.6	44	5	0.7	0.01	0
CAI_II	202103069	41	5.59	66	47.38	114	11	1.5	0.02	0
CAI_II	202103070	41	7.82	66	40.94	304	20	3	0.06	0
CAI_II	202103071	41	4.76	66	41.27	1,913	129	18	0.4	0
CAI_II	202103072	41	3.22	66	34.21	576	38	6	0.12	0
CAI_II	202103073	41	5.04	66	31.78	14	1	0.1	0	0
CAI_II	202103075	41	8.99	66	33.59	106	8	1	0.02	0
CAI_II	202103077	41	12.37	66	23.35	3	0	0.01	0	0
CAI_II	202103078	41	10.58	66	29.06	651	41	7.1	0.13	0
CAI_II	202103079	41	10.26	66	33.13	171	13	2.1	0.04	0
CAI_II	202103080	41	11.6	66	37.94	102	8	1	0.02	0
CAI_II	202103081	41	9.76	66	44.46	37	4	0.4	0.01	0
CAI_II	202103082	41	11.17	66	49.27	55	7	0.8	0.01	0
CAI_II	202103083	41	11.48	66	52.82	36	5	0.5	0.01	0
CAI_II	202103084	41	13.09	66	59.37	32	4	0.4	0.01	0
CAI_II	202103085	41	14.59	67	2.19	7	1	0.1	0	0
CAI_II	202103086	41	12.93	67	9.11	2	0	0.01	0	0
CAI_II	202103089	41	13.62	67	10.97	0	0	0	0	0
CAI_II	202103090	41	15.87	67	6.3	0	0	0	0	0
CAI_II	202103091	41	16.66	66	53.53	25	3	0.5	0.01	0
CAI_II	202103092	41	15.59	66	43.67	87	11	1.25	0.02	0
CAI_II	202103093	41	14.32	66	38.71	122	12	1.5	0.03	0
CAI_II	202103094	41	15.57	66	32.73	218	15	2.5	0.04	0

CAI_II	202103095	41	13.97	66	29.88	151	11	1.5	0.03	0
CAI_II	202103096	41	15.62	66	25.93	908	55	11	0.19	0
CAI_II	202103097	41	19.79	66	35.86	639	39	6.75	0.13	0
CAI_II	202103098	41	18.11	66	42.39	46	5	0.75	0.01	0
CAI_II	202103099	41	20.34	66	44.28	36	4	0.5	0.01	0
CAI_II	202103100	41	19.82	66	48.89	75	9	1.1	0.02	0
CAI_II	202103101	41	20.41	66	54.07	27	3	0.3	0.01	0
CAI_II	202103102	41	18.85	66	57.93	7	1	0.1	0	0
CAI_II	202103103	41	20.13	67	3.15	1	0	0.01	0	0
CAI_II	202103104	41	21.31	67	7.72	0	0	0	0	0
CAI_II	202103105	41	23.25	67	1.7	0	0	0	0	0
CAI_II	202103106	41	23.13	66	56.78	2	0	0.01	0	0
CAI_II	202103107	41	23.62	66	52.92	7	1	0.1	0	0
CAI_II	202103108	41	24.03	66	49.53	57	6	0.8	0.01	0
CAI_II	202103109	41	23.91	66	40.11	65	6	0.9	0.01	0
CAI_II	202103110	41	22.38	66	37.55	182	13	1.6	0.04	0
CAI_II	202103111	41	22.37	66	32.75	311	21	3.1	0.06	0
CAI_II	202103112	41	23.75	66	33.48	470	32	4.5	0.1	0
CAI_II	202103113	41	26.35	66	35.85	85	7	0.9	0.02	0
CAI_II	202103114	41	29.6	66	37.57	82	9	1.2	0.02	0
CAI_II	202103115	41	28.97	66	40.27	56	7	1	0.01	0
CAI_II	202103116	41	29.29	66	45.12	27	3	0.25	0.01	0
CAI_II	202103117	41	28.3	66	45.25	30	4	0.5	0.01	0
CAI_II	202103118	41	29.44	66	54.21	1	0	0.01	0	0
CAI_II	202103119	41	28.67	67	2.64	1	0	0.01	0	0
CAI_II	202103120	41	26.27	67	6.51	0	0	0	0	0
CAI_II	202103121	41	26.61	68	30.82	80	9	1.25	0.02	0
CAI_II	202103122	41	29.37	68	33.49	71	7	1.1	0.02	0
CAI_II	202103123	41	28.59	68	36.63	166	14	2	0.04	0
CAI_II	202103124	41	25.76	68	39.41	84	6	0.9	0.02	0
CAI_II	202103125	41	23.49	68	35.94	73	7	1	0.02	0
CAI_II	202103126	41	20.46	68	41.21	86	10	1.3	0.02	0
CAI_II	202103127	41	18.37	68	44.47	74	8	1.1	0.02	0
CAI_II	202103128	41	19.03	68	48.25	382	28	4.2	0.08	0
CAI_II	202103129	41	16.28	68	52.22	78	6	0.9	0.02	0
CAI_II	202103130	41	13.66	68	50.82	98	9	1.25	0.02	0
CAI_II	202103131	41	11.76	68	54.64	89	7	1.1	0.02	0
CAI_II	202103132	41	10.55	68	57.22	48	4	0.6	0.01	0
CAI_II	202103133	41	6.47	69	0.48	143	14	2.2	0.03	0
CAI_II	202103134	41	9.94	69	1.81	99	8	1.15	0.02	0
CAI_II	202103135	41	11.44	69	6.37	41	3	0.5	0.01	0

CAI II	202103136	41	13.85	69	8.71	44	4	0.5	0.01	0
CAI II	202103137	41	17.38	69	11.58	227	16	2.5	0.05	0
CAI II	202103139	41	21.44	69	15.01	305	23	4.75	0.06	0
CAI II	202103142	41	25.22	69	17.34	96	8	1.5	0.02	0
CAI II	202103143	41	29.22	69	18.42	66	7	1.2	0.01	0
NL	202104001	40	42.95	69	45.81	1	0	0.01	0	0
NL	202104002	40	41.18	69	54.21	0	0	0	0	0
NL	202104003	40	39.7	69	49.46	2	0	0.01	0	0
NL	202104004	40	38.31	69	44.31	7	1	0.01	0	0
NL	202104005	40	37.41	69	41.18	5	0	0.01	0	0
NL	202104006	40	36.84	69	46.77	3	0	0.01	0	0
NL	202104007	40	36.79	69	50.09	5	1	0.01	0	0
NL	202104008	40	36.57	69	57.83	1	0	0.01	0	0
NL	202104009	40	32.64	69	59.2	0	0	0	0	0
NL	202104010	40	33.2	69	55.99	4	0	0.01	0	0
NL	202104011	40	33.66	69	51.52	17	2	0.2	0	0
NL	202104012	40	34.24	69	46.59	8	1	0.1	0	0
NL	202104013	40	34.41	69	42.67	24	2	0.25	0	0
NL	202104014	40	31.57	69	36.19	44	3	0.75	0.01	0
NL	202104015	40	32.27	69	41.04	17	1	0.2	0	0
NL	202104016	40	31.57	69	43.88	1	0	0.01	0	0
NL	202104017	40	32.19	69	47.18	2	0	0.01	0	0
NL	202104018	40	30.59	69	49.23	0	0	0	0	0
NL	202104019	40	29.78	69	53.95	2	0	0.01	0	0
NL	202104020	40	27.83	69	58.97	0	0	0	0	0
NL	202104021	40	28.7	69	52.71	0	0	0	0	0
NL	202104022	40	29.75	69	46.95	6	0	0.05	0	0
NL	202104023	40	29.08	69	42.71	9	1	0.1	0	0
NL	202104024	40	28.45	69	39.3	57	4	0.6	0.01	0
NL	202104025	40	27.3	69	37.85	38	3	0.3	0.01	0
NL	202104026	40	25.61	69	36.6	48	4	0.5	0.01	0
NL	202104027	40	20.95	69	43.99	2	0	0.01	0	0
NL	202104028	40	21.07	69	28.99	2,355	65	27.1	0.45	0
NL	202104029	40	22.13	69	29.82	2,493	74	31.5	0.49	0
NL	202104030	40	23.89	69	28.18	6,423	253	65.3	1.32	0
NL	202104031	40	26.64	69	33.16	52	4	0.6	0.01	0
NL	202104032	40	30.93	69	32.73	16	2	0.15	0	0
NL	202104033	40	34.57	69	35.98	11	1	0.15	0	0
NL	202104034	40	36.91	69	35.19	0	0	0	0	0
NL	202104035	40	35.72	69	29.57	1	0	0.01	0	0
NL	202104036	40	33.5	69	30.25	5	1	0.01	0	0

NL	202104037	40	31.89	69	28.15	13	2	0.1	0	0
NL	202104038	40	29.67	69	29.84	23	3	0.25	0	0
NL	202104039	40	27.64	69	28.32	74	5	1	0.01	0
NL	202104040	40	25.96	69	24.82	716	32	8.75	0.15	0
NL	202104041	40	24.18	69	23.97	3,097	95	39	0.62	0
NL	202104042	40	22.87	69	25.81	4,825	142	55.5	0.95	0
NL	202104043	40	21.71	69	25.7	4,903	139	61.75	0.93	0
NL	202104044	40	22.46	69	22.87	3,262	92	41.5	0.6	0
NL	202104045	40	22.46	69	20.42	1,134	34	13.25	0.21	0
NL	202104046	40	21.21	69	18.82	17	1	0.1	0	0
NL	202104047	40	21.66	69	15.1	0	0	0	0	0
NL	202104048	40	21.46	69	12.28	2	0	0.01	0	0
NL	202104049	40	21.56	69	9.86	1	0	0.01	0	0
NL	202104050	40	20.94	69	4.61	0	0	0	0	0
NL	202104051	40	23.26	69	0.63	3	0	0.01	0	0
NL	202104052	40	23	69	2.45	1	0	0.01	0	0
NL	202104053	40	23.51	69	6.77	90	3	1	0.02	0
NL	202104054	40	23.58	69	11.99	279	8	3.1	0.06	0
NL	202104055	40	24.16	69	15.05	149	5	1.4	0.03	0
NL	202104056	40	24.8	69	18.09	9,738	248	108	1.93	0
NL	202104057	40	25.25	69	20.74	2,592	65	36.5	0.5	0
NL	202104058	40	27.27	69	22.53	121	6	1.3	0.02	0
NL	202104059	40	28.47	69	20.67	38	4	0.5	0.01	0
NL	202104060	40	27.34	69	19.18	69	3	0.8	0.01	0
NL	202104061	40	25.63	69	16.01	725	20	9	0.14	0
NL	202104063	40	26.13	69	8.12	5,946	154	72.3	1.2	0
NL	202104064	40	25.45	69	5.09	31	1	0.25	0.01	0
NL	202104065	40	26.15	69	1.33	16	1	0.15	0	0
NL	202104066	40	28.58	69	1.95	149	10	1.7	0.03	0
NL	202104067	40	28.38	69	4.92	114	6	1.25	0.02	0
NL	202104068	40	27.29	69	9.05	601	19	7.1	0.11	0
NL	202104069	40	27.27	69	12.95	75	3	0.8	0.01	0
NL	202104070	40	27.18	69	15.3	111	4	1.25	0.02	0
NL	202104071	40	28.03	69	15.61	41	3	0.5	0.01	0
NL	202104072	40	29.44	69	12.49	28	3	0.3	0.01	0
NL	202104073	40	29.7	69	10.33	35	3	0.4	0.01	0
NL	202104074	40	30.86	69	7.71	66	6	1	0.01	0
NL	202104075	40	29.68	69	2.22	120	11	1.5	0.02	0
NL	202104076	40	31.6	69	2.4	44	4	0.75	0.01	0
NL	202104077	40	32.41	69	6.47	55	6	0.8	0.01	0
NL	202104078	40	33.27	69	10.13	69	9	1	0.01	0

NL	202104079	40	31.26	69	12.5	17	2	0.2	0	0
NL	202104080	40	30.1	69	15.21	26	3	0.3	0	0
NL	202104081	40	31.27	69	18.35	36	5	0.75	0.01	0
NL	202104082	40	31.6	69	22.04	9	1	0.1	0	0
NL	202104083	40	32.59	69	25.93	32	5	0.75	0.01	0
NL	202104084	40	35.53	69	27.31	2	0	0.01	0	0
NL	202104085	40	35.74	69	23.32	1	0	0.01	0	0
NL	202104086	40	34.54	69	18.42	14	2	0.1	0	0
NL	202104087	40	34.95	69	14.4	35	5	0.75	0.01	0
NL	202104088	40	35.31	69	10.09	50	6	0.75	0.01	0
NL	202104089	40	35.07	69	2.77	60	6	0.9	0.01	0
NL	202104090	40	37.48	69	3.72	44	5	0.8	0.01	0
NL	202104091	40	36.88	69	6.73	58	5	0.8	0.01	0
NL	202104092	40	36.91	69	11.04	52	5	0.8	0.01	0
NL	202104093	40	37.52	69	14.45	6	1	0.05	0	0
NL	202104094	40	38.75	69	16.94	9	1	0.1	0	0
NL	202104095	40	39.03	69	22.55	1	0	0.01	0	0
NL	202104096	40	37.93	69	27.06	2	0	0.01	0	0
NL	202104097	40	39.21	69	26.99	0	0	0	0	0
NL	202104098	40	40.53	69	29.44	0	0	0	0	0
NL	202104099	40	42.09	69	27.78	0	0	0	0	0
NL	202104100	40	41.06	69	23.77	0	0	0	0	0
NL	202104101	40	40.62	69	19.41	14	1	0.15	0	0
NL	202104102	40	39.26	69	14.83	19	2	0.25	0	0
NL	202104103	40	38.18	69	13.02	44	5	0.6	0.01	0
NL	202104104	40	38.4	69	9.88	87	9	1.25	0.02	0
NL	202104105	40	38.43	69	7.5	78	7	1	0.01	0
NL	202104106	40	39.19	69	3.25	54	5	0.75	0.01	0
NL	202104107	40	40.89	69	0.55	277	29	4	0.05	0
NL	202104108	40	40.75	69	4.22	68	8	1.2	0.01	0
NL	202104109	40	40.68	69	7.2	61	6	0.85	0.01	0
NL	202104110	40	42.71	69	10.41	96	7	1	0.02	0
NL	202104111	40	41.7	69	13.6	60	7	1	0.01	0
NL	202104112	40	44.52	69	17.31	98	11	1.5	0.02	0
NL	202104113	40	44.87	69	20.54	1	0	0.01	0	0
NL	202104114	40	43.5	69	23.89	0	0	0	0	0
NL	202104115	40	43.68	69	29.43	0	0	0	0	0
NL	202104116	40	45.97	69	26.73	0	0	0	0	0
NL	202104117	40	45.92	69	19.13	7	1	0.01	0	0
NL	202104118	40	46.92	69	16.95	47	5	0.75	0.01	0
NL	202104119	40	44.86	69	14.05	123	15	2.2	0.02	0

NL	202104120	40	46.44	69	12.24	105	15	2	0.02	0
NL	202104121	40	45.25	69	9.79	0	0	0	0	0
NL	202104122	40	44.88	69	7.51	91	10	1.4	0.02	0
NL	202104123	40	44.95	69	5.14	64	6	1.1	0.01	0
NL	202104124	40	43.99	69	0.81	88	7	1.6	0.02	0
NL	202104125	40	48.12	69	0.93	53	6	1	0.01	0
NL	202104126	40	49.21	69	5.17	64	7	1.1	0.01	0
NL	202104127	40	47.95	69	4.59	73	7	1.1	0.01	0
NL	202104128	40	47.55	69	6.8	67	7	1.1	0.01	0
NL	202104130	40	48.51	69	10.24	116	10	2	0.02	0
NL	202104131	40	49.71	69	12.82	16	2	0.3	0	0
NL	202104132	40	49.33	69	15.87	118	12	1.7	0.02	0
NL	202104133	40	48.54	69	19.46	7	1	0.1	0	0
NL	202104134	40	49.25	69	21.7	0	0	0	0	0
NL	202104135	40	48.72	69	25.31	1	0	0.01	0	0
NL	202104136	40	48.5	69	28.32	0	0	0	0	0

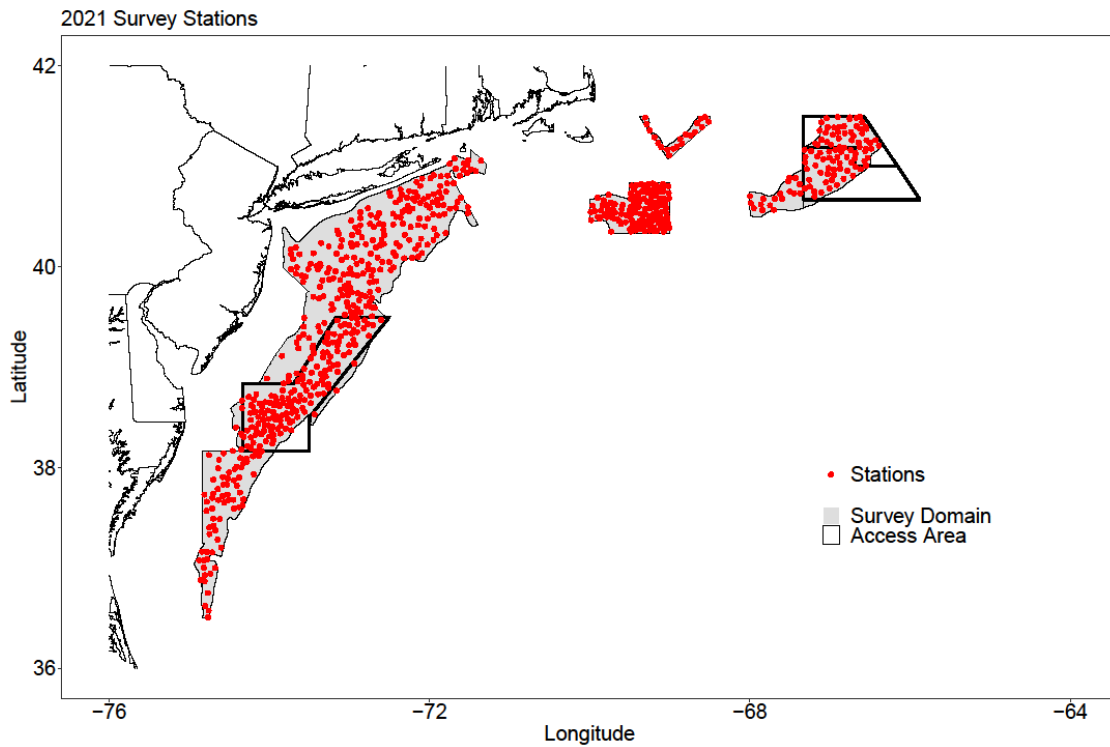


Figure 1: Survey domains with station locations for the VIMS/Industry cooperative surveys of the Mid- Atlantic sea scallop resource area, the Nantucket Lightship, Closed Area I, and Closed Area II completed during May - June 2021.

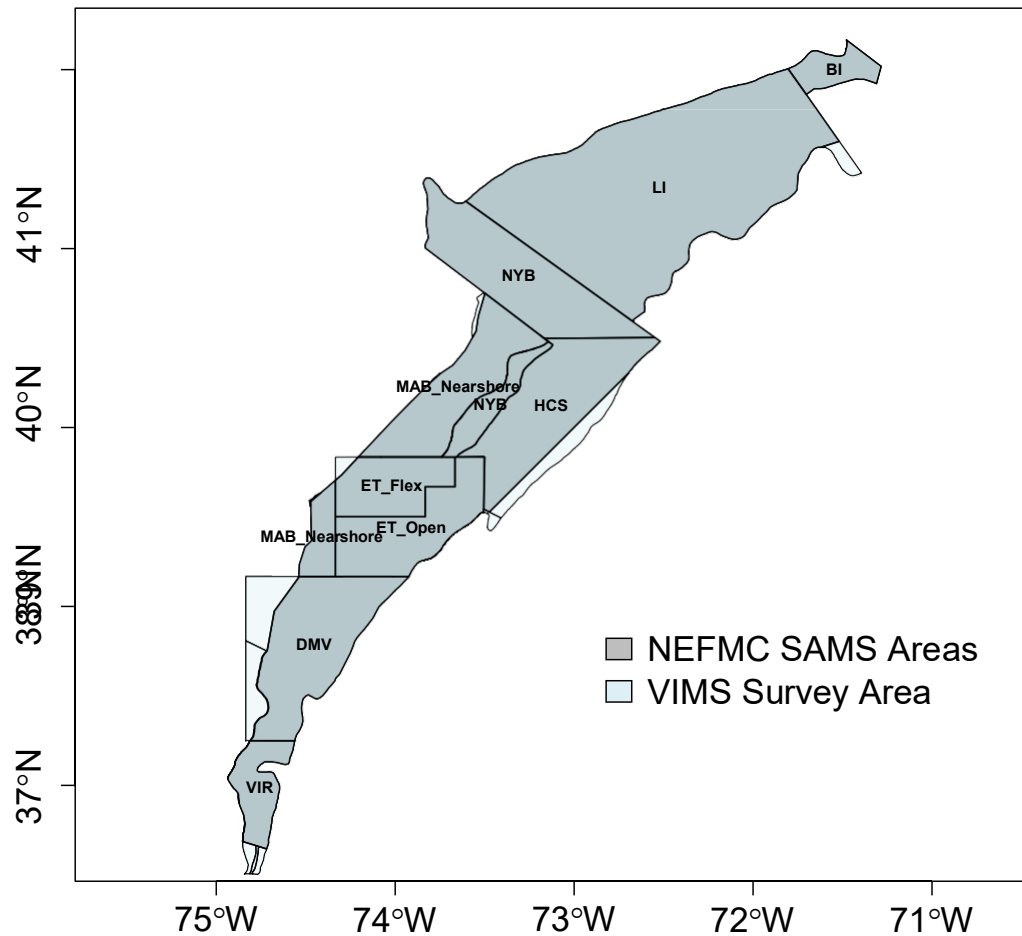


Figure 2: SAMS Areas used to calculate biomass estimates for the VIMS/Industry cooperative survey of the Mid-Atlantic sea scallop resource during May 2021.

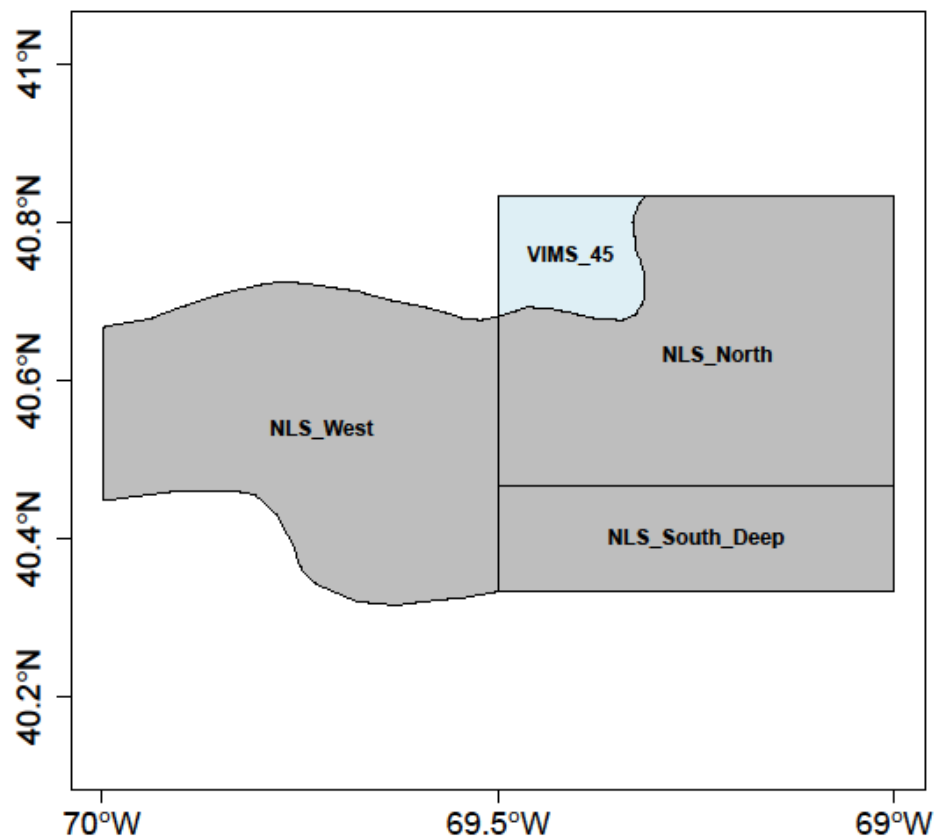


Figure 3: SAMS Areas used to calculate biomass estimates for the VIMS/Industry cooperative survey of the Nantucket Lightship during June 2021.

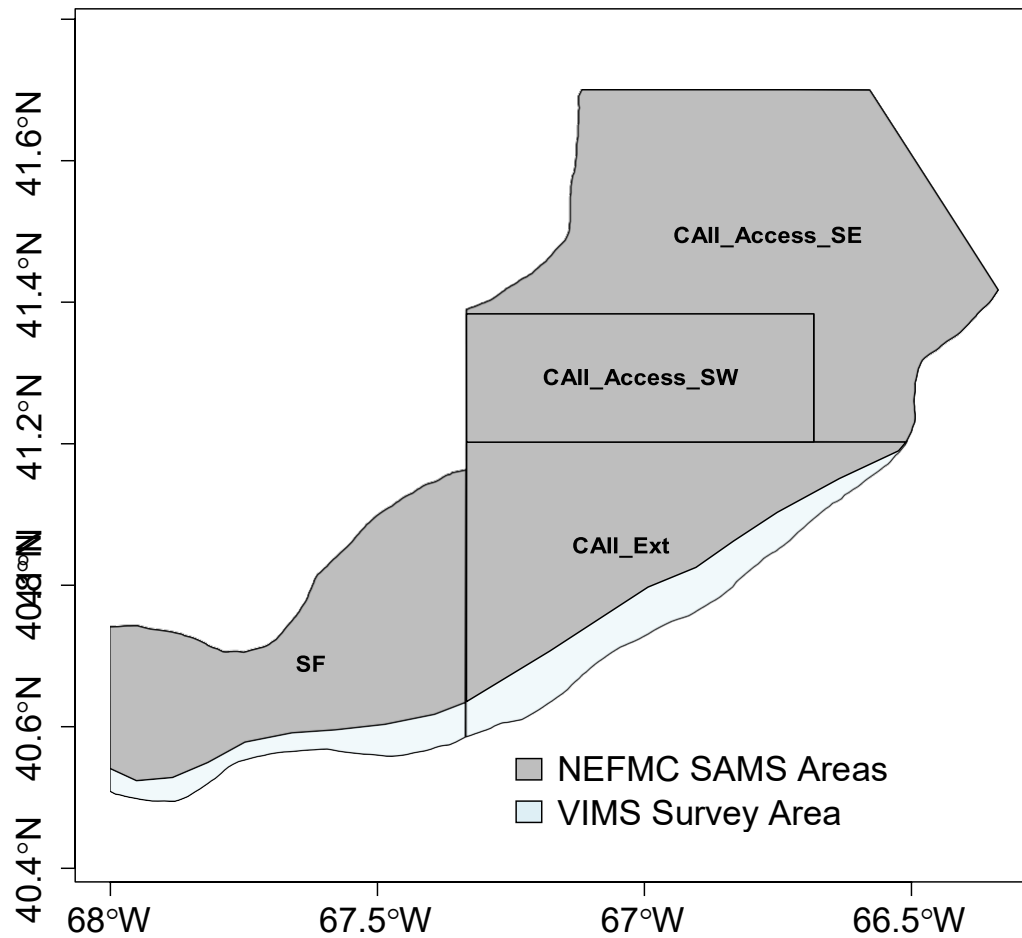


Figure 4: SAMS Areas used to calculate biomass estimates for the VIMS/Industry cooperative survey of the Closed Area II access area and open area along the southern flank during June 2021.

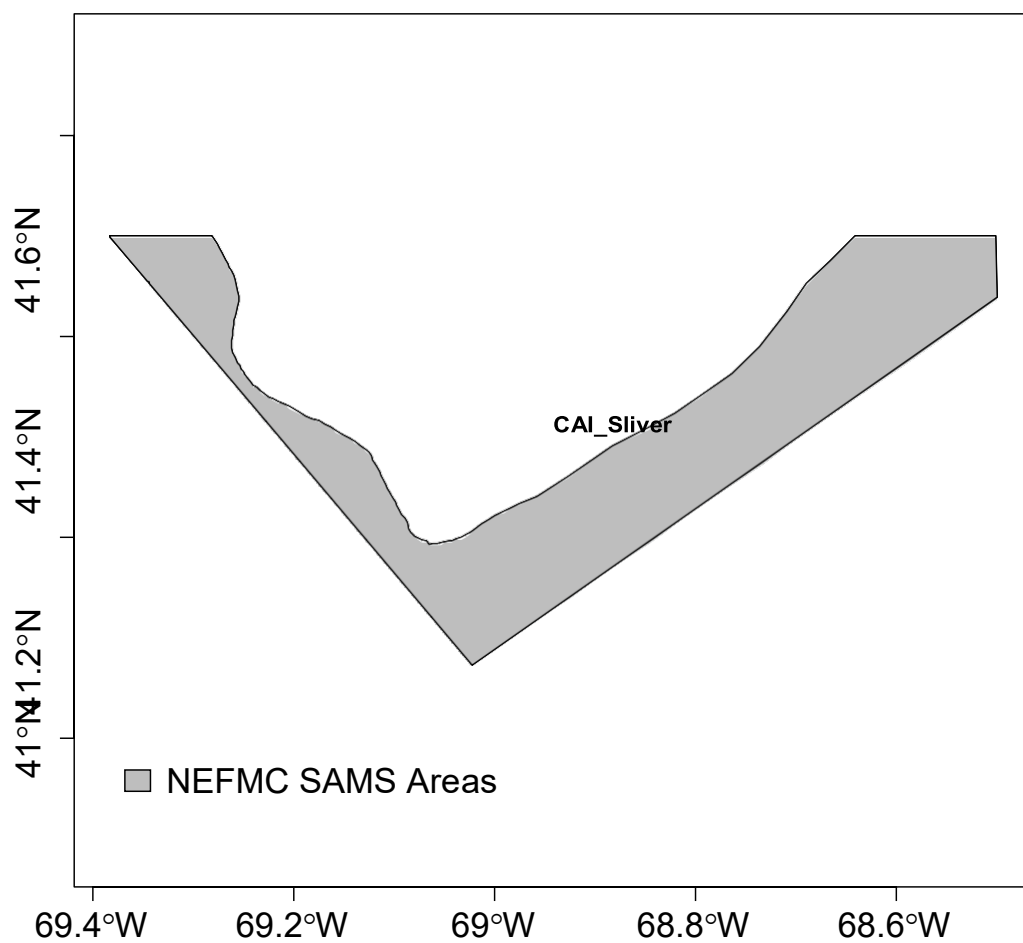


Figure 5: SAMS Area used to calculate biomass estimates for the VIMS/Industry cooperative survey of the Closed Area I access area during June 2021.

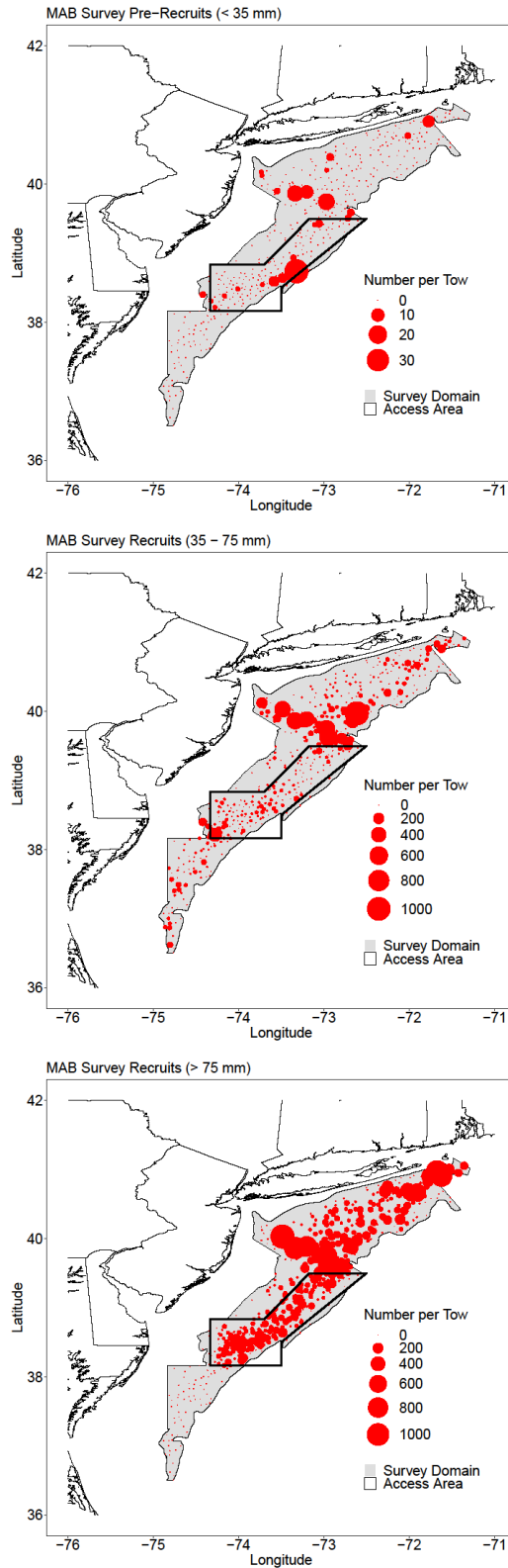


Figure 6: Number of scallops at shell heights of <35 mm, 35–75 mm, and >75 mm caught in the NMFS survey dredge during the VIMS/Industry cooperative survey of the Mid-Atlantic sea scallop resource during May 2021.

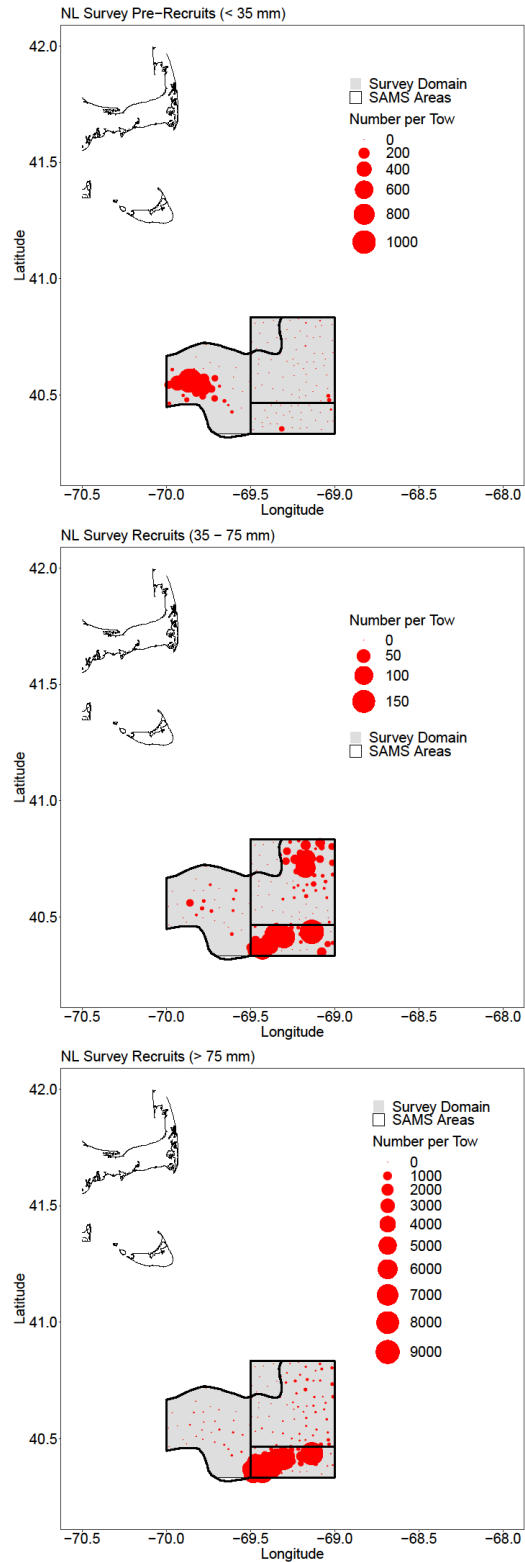


Figure 7: Number of scallops at shell heights of <35 mm, 35–75 mm, and >75 mm caught in the NMFS survey dredge during the VIMS/Industry cooperative survey of the Nantucket Lightship during June 2021.

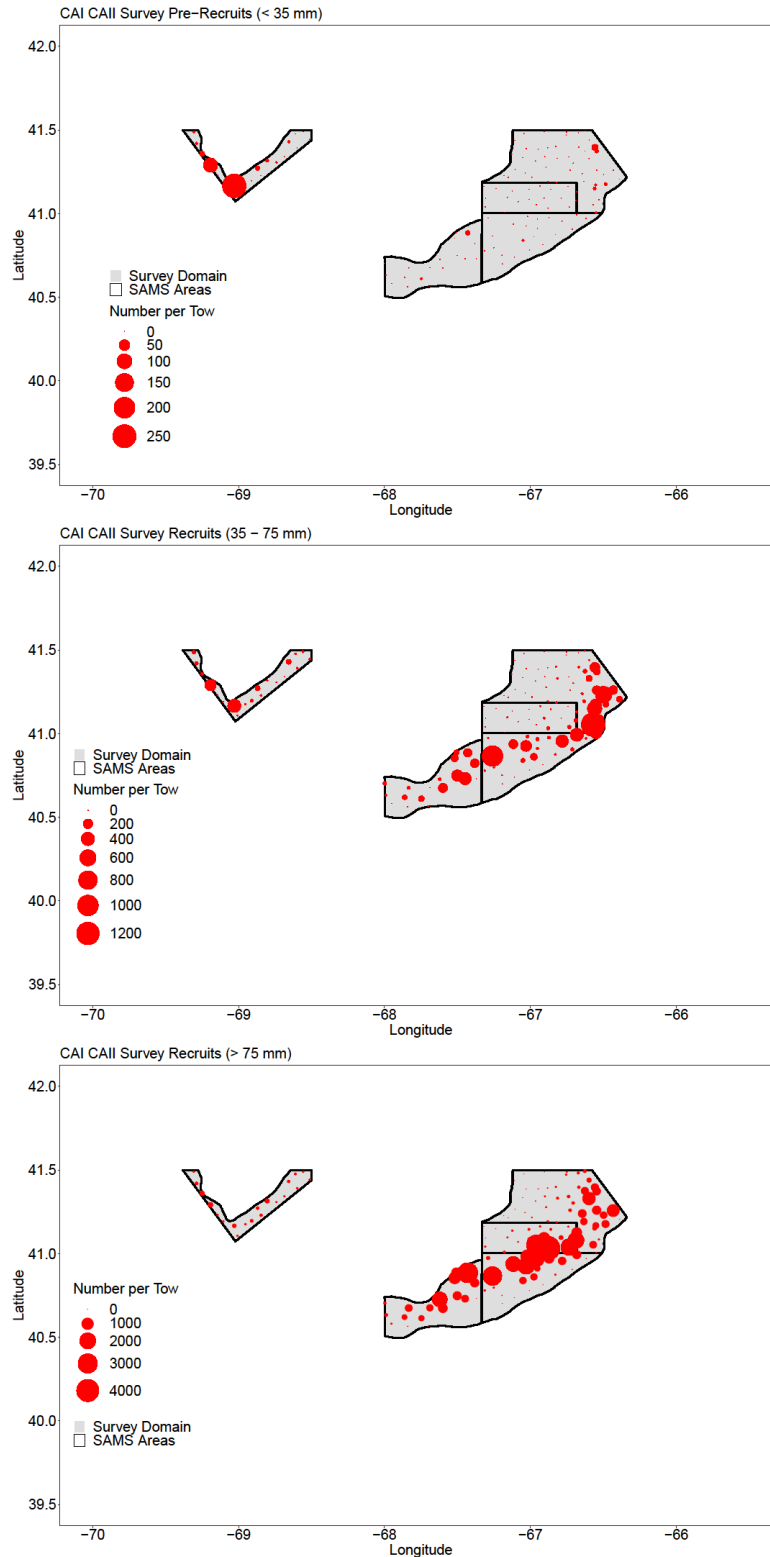


Figure 8: Number of scallops at shell heights of <35 mm, 35–75 mm, and >75 mm caught in the NMFS survey dredge during the VIMS/Industry cooperative survey of the Closed Area I and II during June 2021.

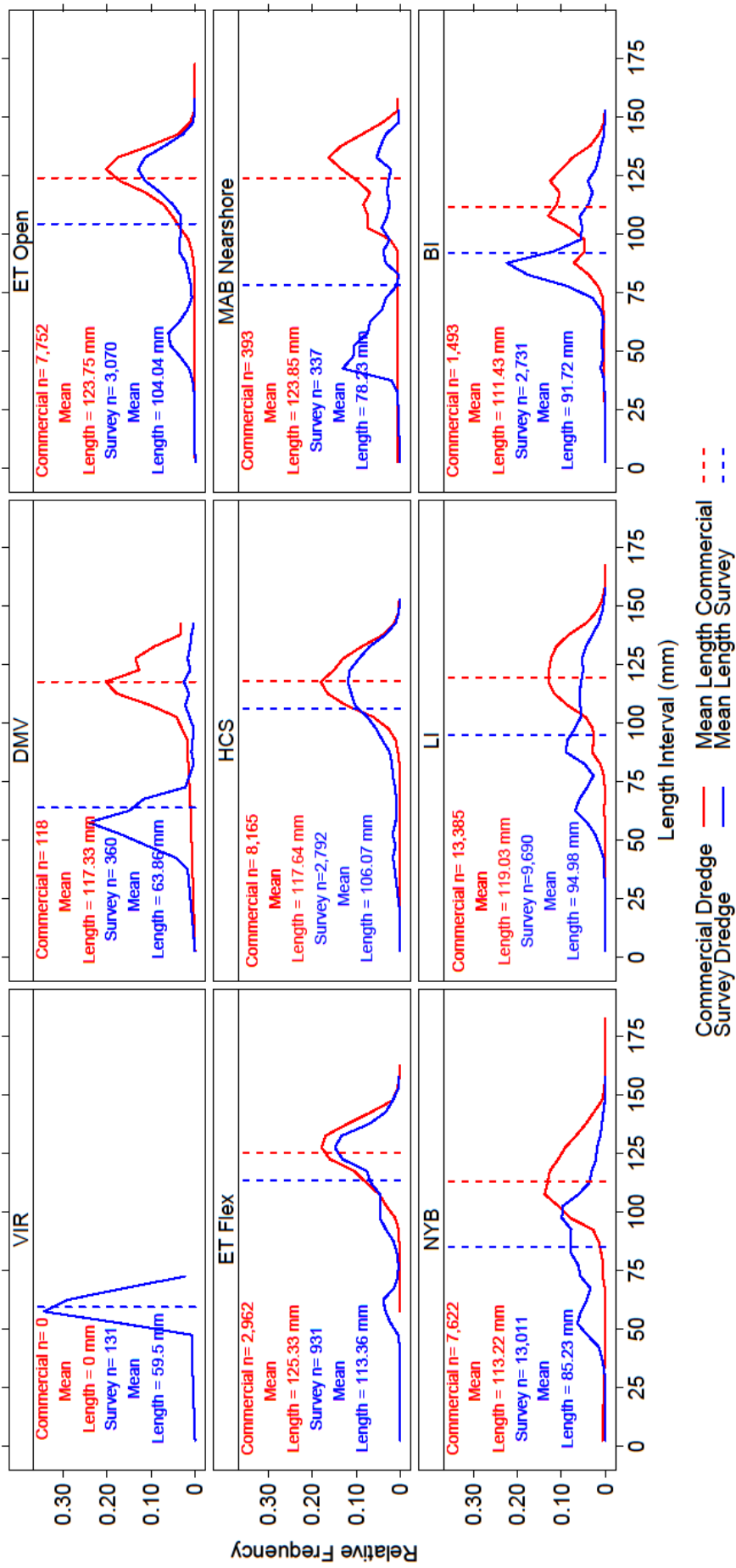


Figure 9: Scallop length frequency distributions generated from catch data obtained from both the survey and commercial dredges during the VIMS/Industry cooperative survey of the Mid-Atlantic sea scallop resource area in May 2021 by SAMS Area. Number of scallops (n) measured and mean length by gear are also included.

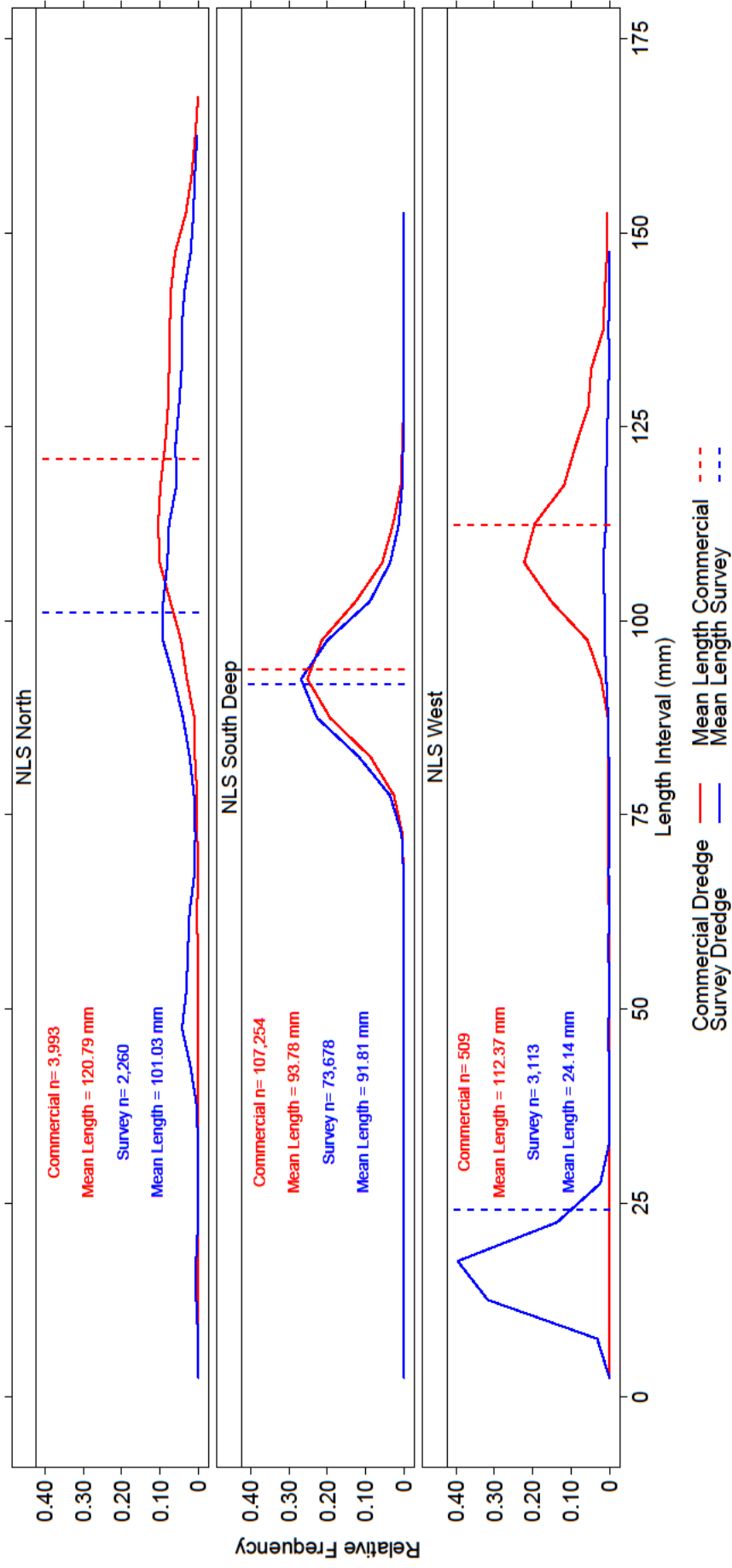


Figure 10: Scallop length frequency distributions generated from catch data obtained from both the survey and commercial dredges during the VIMS/Industry cooperative survey of the Nantucket Lightship survey in June 2021 by SAMS Area. Number of scallops (n) measured and mean length by gear are also included.

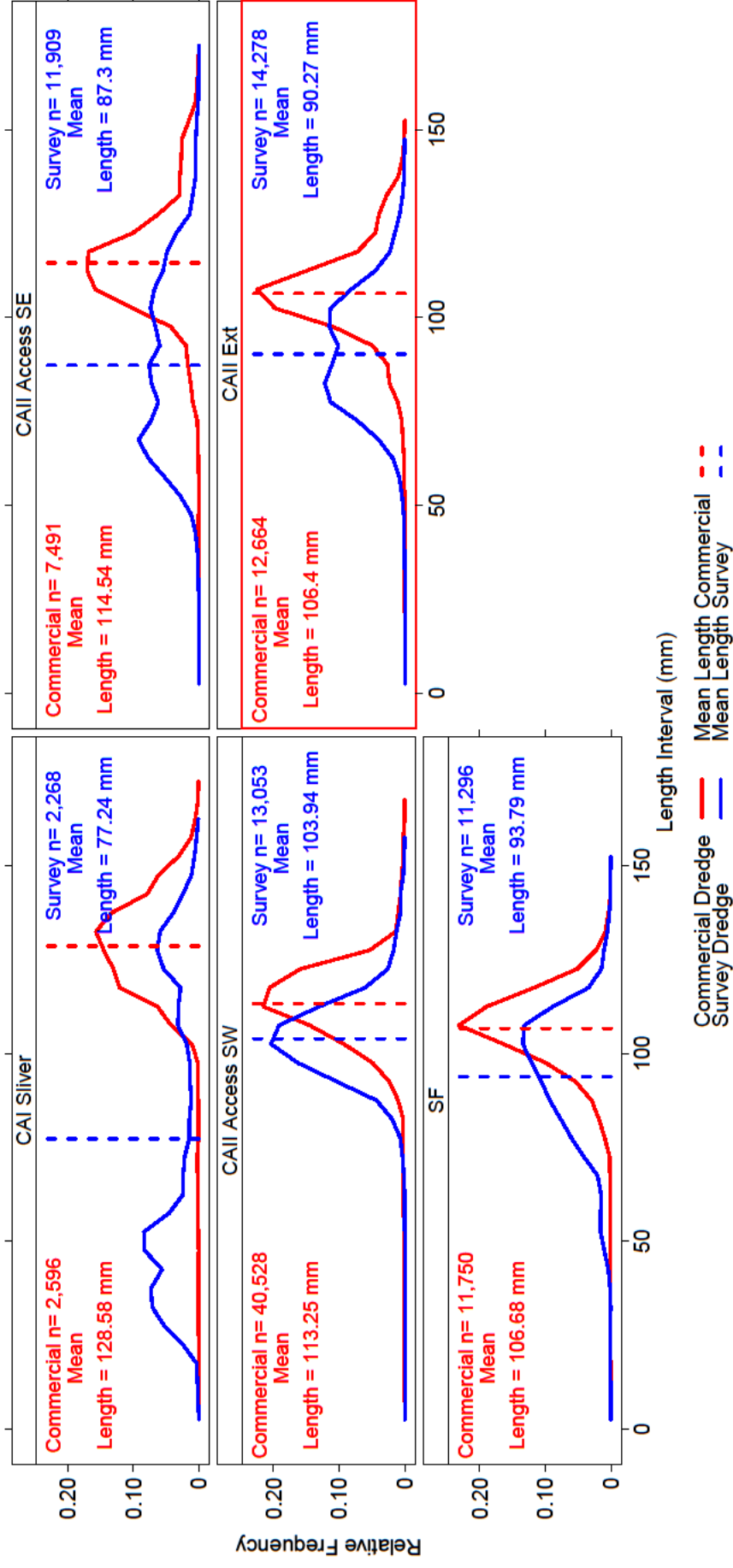


Figure 11: Scallop length frequency distributions generated from catch data obtained from both the survey and commercial dredges during the VIMS/Industry cooperative survey of Closed Area I (top row) and Closed Area II (middle and bottom rows) in June 2021 by SAMS Area. Number of scallops (n) measured and mean length by gear are also included.

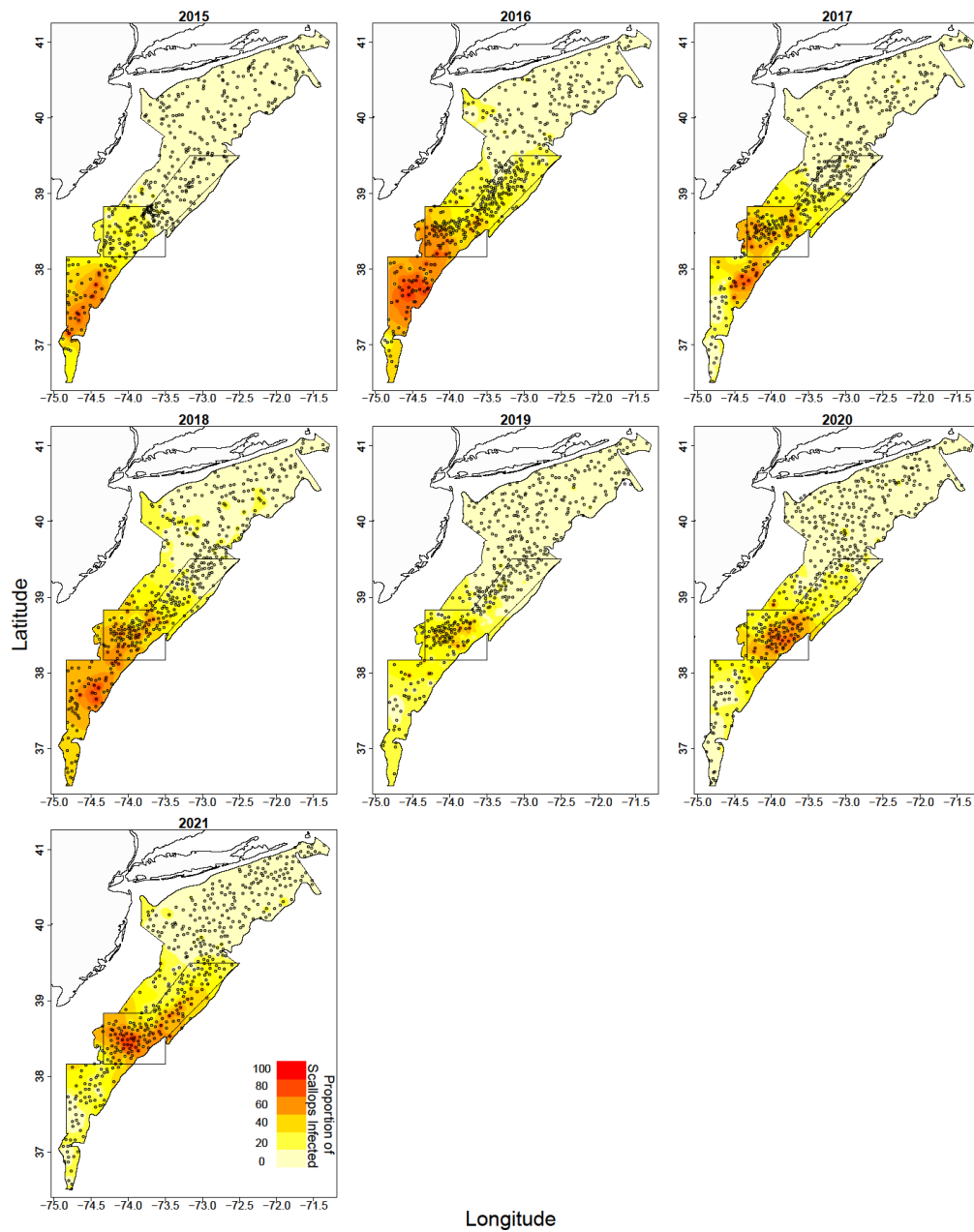


Figure 12: Proportion of scallops infected with nematodes for 2015 - 2021 in the VIMS/Industry cooperative survey of the Mid-Atlantic sea scallop resource area.



Figure 13: Images of a scallop with severe shell blister disease on the left and a scallop with no shell blister disease on the right.

Percentage of Scallops with Shell Blister Disease

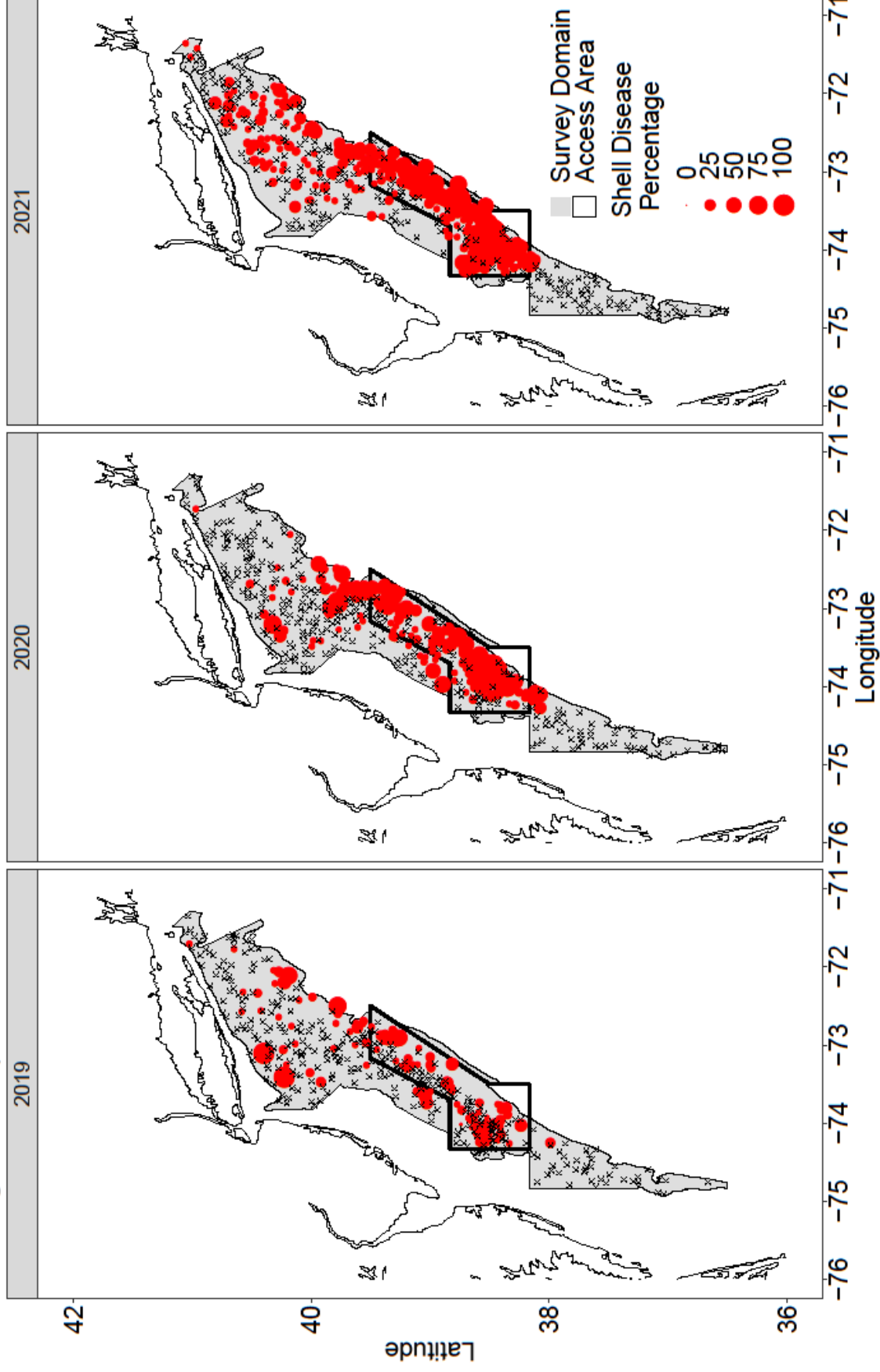


Figure 14: Proportion of scallops infected with shell blister disease for 2019 - 2021 in the VIMS/Industry cooperative survey of the Mid-Atlantic sea scallop resource area.